Toxics Use Reporting Appendices

Developed in collaboration with the
Office of Technical Assistance and Technology
and the Toxics Use Reduction Institute

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Appendix A: Standard Industrial Classification (SIC) Codes and North American Industry Classification System (NAICS) Codes Reportable Under the Massachusetts Toxics Use Reduction Act

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
1011	Iron Ores	212210	212210	212210	Iron Ore Mining
1021	Copper Ores	212234	212234	212234	Copper Ore and Nickel Ore Mining
1031	Lead and Zinc Ores	212231	212231	212231	Lead Ore and Zinc Ore Mining
1041	Gold Ores	212221	212221	212221	Gold Ore Mining
1044	Silver Ores	212222	212222	212222	Silver Ore Mining
1061	Ferroalloy Ores, Except Vanadium (nickel)	212234	212234	212234	Copper Ore and Nickel Ore Mining
1061	Ferroalloy Ores, Except Vanadium (other ferroalloys except nickel)	212299	212299	212299	All Other Metal Ore Mining
1081	Metal Mining Services (except site preparation and related activities performed on a contract or fee basis and geophysical surveying and mapping)	213114	213114	213114	Support Activities for Metal Mining
1081	Metal Mining Services (site preparation and related construction activities on a contract basis)	238910	238910	238910	Site Preparation Contractors
1081	Metal Mining Services (geophysical surveying and mapping)	541360	541360	541360	Geophysical Surveying and Mapping Services
1094	Uranium-Radium-Vanadium Ores	212291	212291	212291	Uranium-Radium-Vanadium Ore Mining
1099	Miscellaneous Metal Ores, NEC	212299	212299	212299	All Other Metal Ore Mining
1221	Bituminous Coal and Lignite Surface Mining	212111	212111	212111	Bituminous Coal and Lignite Surface Mining
1222	Bituminous Coal Underground Mining	212112	212112	212112	Bituminous Coal Underground Mining
1231	Anthracite Mining	212113	212113	212113	Anthracite Mining
1241	Coal Mining Services (except site preparation and related construction activities on a contract basis)	213113	213113	213113	Support Activities for Coal Mining
1241	Coal Mining Services (site preparation and related construction activities on a contract basis)	238910	238910	238910	Site Preparation Contractors
1311	Crude Petroleum and Natural Gas	211111	211111	211111	Crude Petroleum and Natural Gas Extraction
1321	Natural Gas Liquids	211112	211112	211112	Natural Gas Liquid Extraction
1381	Drilling Oil and Gas Wells	213111	213111	213111	Drilling Oil and Gas Wells
1382	Oil and Gas Field Exploration Services (except geophysical mapping and surveying)	213112	213112	213112	Support Activities for Oil and Gas Operations
1382	Oil and Gas Field Exploration Services (geophysical surveying and mapping)	541360	541360	541360	Geophysical Surveying and Mapping Services
1389	Oil and Gas Field Services, NEC (except construction of field gathering lines, site preparation and related construction activities performed on a contract or fee basis)	213112	213112	213112	Support Activities for Oil and Gas Operations
1389	Oil and Gas Field Services, NEC (construction of field gathering lines on a contract or fee basis)	237120	237120	237120	Oil and Gas Pipeline and Related Structures Construction
1389	Oil and Gas Field Services, NEC (site preparation and related construction activities on a contract basis)	238910	238910	238910	Site Preparation Contractors
1411	Dimension Stone	212311	212311	212311	Dimension Stone Mining and Quarrying
1422	Crushed and Broken Limestone	212312	212312	212312	Crushed and Broken Limestone Mining and Quarrying
1423	Crushed and Broken Granite	212313	212313	212313	Crushed and Broken Granite Mining and Quarrying
1429	Crushed and Broken Stone, NEC	212319	212319	212319	Other Crushed and Broken Stone Mining and Quarrying
1442	Construction Sand and Gravel	212321	212321	212321	Construction Sand and Gravel Mining
1446	Industrial Sand	212322	212322	212322	Industrial Sand Mining

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
1455	Kaolin and Ball Clay	212324	212324	212324	Kaolin and Ball Clay Mining
1459	Clay, Ceramic, and Refractory Minerals, NEC	212325	212325	212325	Clay and Ceramic and Refractory Minerals Mining
1474	Potash, Soda, and Borate Minerals	212391	212391	212391	Potash, Soda, and Borate Mineral Mining
1475	Phosphate Rock	212392	212392	212392	Phosphate Rock Mining
1479	Chemical and Fertilizer Mineral Mining, NEC	212393	212393	212393	Other Chemical and Fertilizer Mineral Mining
1481	Nonmetallic Minerals Services, Except Fuels (except geophysical surveying and mapping and site preparation and related construction activities performed on a contract or fee basis)	213115	213115	213115	Support Activities for Nonmetallic Minerals (except Fuels) Mining
1481	Nonmetallic Minerals Services, Except Fuels (site preparation and related construction activities on a contract basis)	238910	238910	238910	Site Preparation Contractors
1481	Nonmetallic Minerals Services, Except Fuels (geophysical surveying and mapping)	541360	541360	541360	Geophysical Surveying and Mapping Services
1499	Miscellaneous Nonmetallic Minerals, Except Fuels (bituminous limestone and bituminous sandstone)	212319	212319	212319	Other Crushed and Broken Stone Mining and Quarrying
1499	Miscellaneous Nonmetallic Minerals, Except Fuels (except bituminous limestone and bituminous sandstone)	212399	212399	212399	All Other Nonmetallic Mineral Mining
2011	Meat Packing Plants	311611	311611	311611	Animal (except Poultry) Slaughtering
2013	Sausages and Other Prepared Meat Products (except lard made from purchased materials)	311612	311612	311612	Meat Processed from Carcasses
2013	Sausages and Other Prepared Meat Products (lard made from purchased materials)	311613	311613	311613	Rendering and Meat Byproduct Processing
2015	Poultry Slaughtering and Processing (poultry slaughtering and processing)	311615	311615	311615	Poultry Processing
2015	Poultry Slaughtering and Processing (egg processing)	311999	311999	311999	All Other Miscellaneous Food Manufacturing
2021	Creamery Butter	311512	311512	311512	Creamery Butter Manufacturing
2022	Natural, Processed, and Imitation Cheese	311513	311513	311513	Cheese Manufacturing
2023	Dry, Condensed and Evaporated Dairy Products (liquid non-dairy creamer)	311511	311511	311511	Fluid Milk Manufacturing
2023	Dry, Condensed and Evaporated Dairy Products (except liquid non-dairy creamer)	311514	311514	311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing
2024	Ice Cream and Frozen Desserts	311520	311520	311520	Ice Cream and Frozen Dessert Manufacturing
2026	Fluid Milk (except ultra-high temperature)	311511	311511	311511	Fluid Milk Manufacturing
2026	Fluid Milk (ultra-high temperature)	311514	311514	311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing
2032	Canned Specialties (except canned puddings)	311422	311422	311422	Specialty Canning
2032	Canned Specialties (canned puddings)	311999	311999	311999	All Other Miscellaneous Food Manufacturing
2033	Canned Fruits, Vegetables, Preserves, Jams, and Jellies	311421	311421	311421	Fruit and Vegetable Canning
2034	Dried and Dehydrated Fruits, Vegetables and Soup Mixes (vegetable flour)	311211	311211	311211	Flour Milling
2034	Dried and Dehydrated Fruits, Vegetables and Soup Mixes (except vegetable flour and soup mixes made from purchased dried and dehydrated ingredients)	311423	311423	311423	Dried and Dehydrated Food Manufacturing
2034	Dried and Dehydrated Fruits, Vegetables, and Soup Mixes (soup mixes made from purchased dehydrated ingredients)	311999	311999	311999	All Other Miscellaneous Food Manufacturing
2035	Pickled Fruits and Vegetables, Vegetable Sauces and Seasonings, and Salad Dressings (pickled fruits and vegetables)	311421	311421	311421	Fruit and Vegetable Canning
2035	Pickled Fruits and Vegetables, Vegetable Sauces and Seasonings, and Salad Dressings (sauces and salad dressings)	311941	311941	311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
2037	Frozen Fruits, Fruit Juices, and Vegetables	311411	311411	311411	Frozen Fruit, Juice, and Vegetable Manufacturing
2038	Frozen Specialties, NEC	311412	311412	311412	Frozen Specialty Food Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2041	Flour and Other Grain Mill Products	311211	311211	311211	Flour Milling
2043	Cereal Breakfast Foods (cereal breakfast foods and related preparations except grain based coffee substitutes)	311230	311230	311230	Breakfast Cereal Manufacturing
2043	Cereal Breakfast Foods (grain based coffee substitutes)	311920	311920	311920	Coffee and Tea Manufacturing
2044	Rice Milling	311212	311212	311212	Rice Milling
2045	Prepared Flour Mixes and Doughs	311822	311822	311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
2046	Wet Corn Milling (except refining purchased corn oil)	311221	311221	311221	Wet Corn Milling
2046	Wet Corn Milling (refining purchased corn oil)	311225	311225	311225	Fats and Oils Refining and Blending
2047	Dog and Cat Food	311111	311111	311111	Dog and Cat Food Manufacturing
2048	Prepared Feeds and Feed Ingredients for Animals and Fowls, Except Dogs and Cats (except slaughtering animals for pet food)	311119	311119	311119	Other Animal Food Manufacturing
2048	Prepared Feeds and Feed Ingredients for Animals and Fowls, Except Dogs and Cats (slaughtering animals for pet food)	311611	311611	311611	Animal (except Poultry) Slaughtering
2051	Bread and Other Bakery Products, Except Cookies and Crackers	311812	311812	311812	Commercial Bakeries
2052	Cookies and Crackers (unleavened bread and soft pretzels)	311812	311812	311812	Commercial Bakeries
2052	Cookies and Crackers (except unleavened bread and pretzels)	311821	311821	311821	Cookie and Cracker Manufacturing
2052	Cookies and Crackers (hard pretzels and snack pretzels, except soft)	311919	311919	311919	Other Snack Food Manufacturing
2053	Frozen Bakery Products, Except Bread	311813	311813	311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
2061	Cane Sugar, Except Refining	311311	311311	311314	Cane Sugar Manufacturing
2062	Cane Sugar Refining	311312	311312	311314	Cane Sugar Manufacturing
2063	Beet Sugar	311313	311313	311313	Beet Sugar Manufacturing
2064	Candy and Other Confectionery Products (chocolate confectionery)	311330	311330	311352	Confectionery Manufacturing from Purchased Chocolate
2064	Candy and Other Confectionery Products (nonchocolate confectionery)	311340	311340	311340	Nonchocolate Confectionery Manufacturing
2066	Chocolate and Cocoa Products (except chocolate products, made from purchased chocolate)	311320	311320	311351	Chocolate and Confectionery Manufacturing from Cacao Beans
2066	Chocolate and Cocoa Products (chocolate products made from purchased chocolate)	311330	311330	311352	Confectionery Manufacturing from Purchased Chocolate
2067	Chewing Gum	311340	311340	311340	Nonchocolate Confectionery Manufacturing
2068	Salted and Roasted Nuts and Seeds	311911	311911	311911	Roasted Nuts and Peanut Butter Manufacturing
2074	Cottonseed Oil Mills (cottonseed processing)	311223	311223	311224	Soybean and Other Oilseed Processing
2074	Cottonseed Oil Mills (processing purchased cottonseed oil)	311225	311225	311225	Fats and Oils Refining and Blending
2075	Soybean Oil Mills (soybean processing, except edible soybean oil)	311222	311222	311224	Soybean and Other Oilseed Processing
2075	Soybean Oil Mills (processing purchased soybean oil)	311225	311225	311225	Fats and Oils Refining and Blending
2076	Vegetable Oil Mills, Except Corn, Cottonseed, and Soybean (oilseed processing)	311223	311223	311224	Soybean and Other Oilseed Processing
2076	Vegetable Oil Mills, Except Corn, Cottonseed, and Soybean (processing purchased vegetable and oilseed oils)	311225	311225	311225	Fats and Oils Refining and Blending
2077	Animal and Marine Fats and Oils (animal fats and oils)	311613	311613	311613	Rendering and Meat Byproduct Processing
2077	Animal and Marine Fats and Oils (canned marine fats and oils)	311711	311711	311710	Seafood Product Preparation and Packaging
2077	Animal and Marine Fats and Oils (fresh and frozen marine fats and oils)	311712	311712	311710	Seafood Product Preparation and Packaging
2079	Shortening, Table Oils, Margarine, and Other Edible Fats and Oils, NEC (processing soybean oil into edible cooking oils from soybeans crushed in the same establishment)	311222	311222	311224	Soybean and Other Oilseed Processing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2079	Shortening, Table Oils, Margarine and Other Edible Fats and Oils, NEC (processing vegetable oils, except soybean, into edible cooking oils from oilseeds and vegetables crushed in the same establishment)	311223	311223	311224	Soybean and Other Oilseed Processing
2079	Shortening, Table Oils, Margarine, and Other Edible Fats and Oils, NEC (except processing vegetable and soybean oils into edible oils from oilseeds and vegetables crushed in the same establishment)	311225	311225	311225	Fats and Oils Refining and Blending
2082	Malt Beverages (malt extract)	311942	311942	311942	Spice and Extract Manufacturing
2082	Malt Beverages (except malt extract)	312120	312120	312120	Breweries
2083	Malt	311213	311213	311213	Malt Manufacturing
2084	Wines, Brandy, and Brandy Spirits	312130	312130	312130	Wineries
2085	Distilled and Blended Liquors (apple jack)	312130	312130	312130	Wineries
2085	Distilled and Blended Liquors (except apple jack)	312140	312140	312140	Distilleries
2086	Bottled and Canned Soft Drinks and Carbonated Water (except bottled water)	312111	312111	312111	Soft Drink Manufacturing
2086	Bottled and Canned Soft Drinks and Carbonated Water (bottled water)	312112	312112	312112	Bottled Water Manufacturing
2087	Flavoring Extracts and Flavoring Syrups, NEC (coffee flavoring and syrups)	311920	311920	311920	Coffee and Tea Manufacturing
2087	Flavoring Extracts and Flavoring Syrups, NEC (flavoring syrups and concentrates except coffee)	311930	311930	311930	Flavoring Syrup and Concentrate Manufacturing
2087	Flavoring Extracts and Flavoring Syrups, NEC (flavoring extracts and natural food colorings)	311942	311942	311942	Spice and Extract Manufacturing
2087	Flavoring Extracts and Flavoring Syrups, NEC (powered drink mix)	311999	311999	311999	All Other Miscellaneous Food Manufacturing
2091	Canned and Cured Fish and Seafoods	311711	311711	311710	Seafood Product Preparation and Packaging
2092	Prepared Fresh or Frozen Fish and Seafoods	311712	311712	311710	Seafood Product Preparation and Packaging
2095	Roasted Coffee	311920	311920	311920	Coffee and Tea Manufacturing
2096	Potato Chips, Corn Chips, and Similar Snacks	311919	311919	311919	Other Snack Food Manufacturing
2097	Manufactured Ice	312113	312113	312113	Ice Manufacturing
2098	Macaroni, Spaghetti, Vermicelli and Noodles	311823	311823	311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
2099	Food Preparations, NEC (reducing maple sap to maple syrup)	111998	111998	111998	All Other Miscellaneous Crop Farming
2099	Food Preparations, NEC (reducing maple sap to maple syrup)	111998	112519	112519	Other Aquaculture
2099	Food Preparations, NEC (rice, uncooked and packaged with other ingredients made in rice mills)	311212	311212	311212	Rice Milling
2099	Food Preparations, NEC (marshmallow creme)	311340	311340	311340	Nonchocolate Confectionery Manufacturing
2099	Food Preparations, NEC (bouillon and potatoes dried and packaged with other ingredients produced in dehydrating plants)	311423	311423	311423	Dried and Dehydrated Food Manufacturing
2099	Food Preparations, NEC (dry pasta packaged with other ingredients made in dry pasta plants)	311823	311823	311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
2099	Food Preparations, NEC (tortillas)	311830	311830	311830	Tortilla Manufacturing
2099	Food Preparations, NEC (peanut butter)	311911	311911	311911	Roasted Nuts and Peanut Butter Manufacturing
2099	Food Preparations, NEC (tea)	311920	311920	311920	Coffee and Tea Manufacturing
2099	Food Preparations, NEC (vinegar, prepared dip)	311941	311941	311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
2099	Food Preparations, NEC (spices, dry dip mix, dry salad dressing mix, and seasoning mix)	311942	311942	311942	Spice and Extract Manufacturing
2099	Food Preparations, NEC (perishable prepared food)	311991	311991	311991	Perishable Prepared Food Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2099	Food Preparations, NEC (except bouillon, marshmallow creme, spices, peanut butter, perishable prepared foods, tortillas, tea and tea extracts, dry dip mix, prepared dips, dry salad dressing mix, seasoning mix, dried potatoes, pasta, and rice mixed with ot	311999	311999	311999	All Other Miscellaneous Food Manufacturing
2111	Cigarettes	312221	312221	312230	Tobacco Manufacturing
2121	Cigars	312229	312229	312230	Tobacco Manufacturing
2131	Chewing and Smoking Tobacco and Snuff	312229	312229	312230	Tobacco Manufacturing
2141	Tobacco Stemming and Redrying (stemming and redrying tobacco)	312210	312210	312230	Tobacco Manufacturing
2141	Tobacco Stemming and Redrying (reconstituted tobacco)	312229	312229	312230	Tobacco Manufacturing
2211	Broadwoven Fabric Mills, Cotton	313210	313210	313210	Broadwoven Fabric Mills
2221	Broadwoven Fabric Mills, Manmade Fiber and Silk	313210	313210	313210	Broadwoven Fabric Mills
2231	Broadwoven Fabric Mills, Wool (Including Dyeing and Finishing) (except finishing wool fabric without weaving wool fabric)	313210	313210	313210	Broadwoven Fabric Mills
2231	Broadwoven Fabric Mills, Wool (wool broadwoven fabric finishing without weaving fabric)	313311	313311	313310	Textile and Fabric Finishing Mills
2231	Broadwoven Fabric Mills, Wool (wool fabric, except broadwoven, finishing without weaving fabric)	313312	313312	313310	Textile and Fabric Finishing Mills
2241	Narrow Fabric and Other Smallware Mills: Cotton, Wool, Silk and Manmade Fiber	313221	313221	313220	Narrow Fabric Mills and Schiffli Machine Embroidery
2251	Women's Full-Length and Knee-Length Hosiery, Except Socks (dyeing and finishing sheer hosiery without knitting sheer hosiery)	313312	313312	313310	Textile and Fabric Finishing Mills
2251	Women's Full-Length and Knee-Length Hosiery, Except Socks (except dyeing and finishing sheer hosiery without knitting sheer hosiery)	315111	315111	315110	Hosiery and Sock Mills
2252	Hosiery, NEC (dyeing and finishing hosiery , except sheer, without knitting hosiery)	313312	313312	313310	Textile and Fabric Finishing Mills
2252	Hosiery, NEC (girls' full length and knee length sheer hosiery)	315111	315111	315110	Hosiery and Sock Mills
2252	Hosiery, NEC (except girls' full-length and knee-length sheer hosiery and dyeing and finishing hosiery without knitting hosiery)	315119	315119	315110	Hosiery and Sock Mills
2253	Knit Outerwear Mills (dyeing and finishing knit outerwear without knitting outerwear)	313312	313312	313310	Textile and Fabric Finishing Mills
2253	Knit Outerwear Mills (except bath and lounging robes and dying and finish without knitting garments)	315191	315191	315190	Other Apparel Knitting Mills
2253	Knit Outerwear Mills (knitting bath or lounging robes)	315192	315192	315190	Other Apparel Knitting Mills
2254	Knit Underwear and Nightwear Mills (dyeing and finishing underwear and nightwear without knitting garments)	313312	313312	313310	Textile and Fabric Finishing Mills
2254	Knit Underwear and Nightwear Mills (except dyeing and finishing underwear and nightwear without knitting garments)	315192	315192	315190	Other Apparel Knitting Mills
2257	Weft Knit Fabric Mills (except finishing without knitting weft fabric)	313241	313241	313240	Knit Fabric Mills
2257	Weft Knit Fabric Mills (finishing weft fabric without knitting weft fabric)	313312	313312	313310	Textile and Fabric Finishing Mills
2258	Lace and Warp Knit Fabric Mills (except finishing lace or warp fabric without knitting lace or warp fabric)	313249	313249	313240	Knit Fabric Mills
2258	Lace and Warp Knit Fabric Mills (finishing lace or warp fabric without knitting lace or warp fabric)	313312	313312	313310	Textile and Fabric Finishing Mills
2259	Knitting Mills, NEC (knitting weft fabric and fabricating textile products, such as bedspreads, curtains, or towels)	313241	313241	313240	Knit Fabric Mills
2259	Knitting Mills, NEC (knitting lace or warp fabric and fabricating textile products, such as bedspreads, curtains, or towels)	313249	313249	313240	Knit Fabric Mills
2259	Knitting Mills, NEC (dyeing and finishing knit gloves and mittens without knitting gloves or mittens)	313312	313312	313310	Textile and Fabric Finishing Mills

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2259	Knitting Mills, NEC (knitting gloves and mittens)	315191	315191	315190	Other Apparel Knitting Mills
2259	Knitting Mills, NEC (knitting girdles and allied foundation garments)	315192	315192	315190	Other Apparel Knitting Mills
2261	Finishers of Broadwoven Fabrics of Cotton	313311	313311	313310	Textile and Fabric Finishing Mills
2262	Finishers of Broadwoven Fabrics of Manmade Fiber and Silk	313311	313311	313310	Textile and Fabric Finishing Mills
2269	Finishers of Textiles, NEC (linen fabric finishing)	313311	313311	313310	Textile and Fabric Finishing Mills
2269	Finishers of Textiles, NEC (except linen fabric finishing)	313312	313312	313310	Textile and Fabric Finishing Mills
2273	Carpets and Rugs	314110	314110	314110	Carpet and Rug Mills
2281	Yarn Spinning Mills	313111	313111	313110	Fiber, Yarn, and Thread Mills
2282	Yarn Texturizing, Throwing, Twisting and Winding Mills	313112	313112	313110	Fiber, Yarn, and Thread Mills
2284	Thread Mills (except finishing thread without manufacturing thread)	313113	313113	313110	Fiber, Yarn, and Thread Mills
2284	Thread Mills (finishing thread without manufacturing thread)	313312	313312	313310	Textile and Fabric Finishing Mills
2295	Coated Fabrics, Not Rubberized	313320	313320	313320	Fabric Coating Mills
2296	Tire Cord and Fabrics	314992	314992	314994	Rope, Cordage, Twine, Tire Cord, and Tire Fabric Mills
2297	Nonwoven Fabrics	313230	313230	313230	Nonwoven Fabric Mills
2298	Cordage and Twine (hemp rope made in spinning mills)	313111	313111	313110	Fiber, Yarn, and Thread Mills
2298	Cordage and Twine (except hemp rope made in spinning mills)	314991	314991	314994	Rope, Cordage, Twine, Tire Cord, and Tire Fabric Mills
2299	Textile Goods, NEC (hemp bags made in spinning mills)	313111	313111	313110	Fiber, Yarn, and Thread Mills
2299	Textile Goods, NEC (spinning yarn of flax, hemp, jute, and ramie)	313111	313111	313110	Fiber, Yarn, and Thread Mills
2299	Textile Goods, NEC (manufacturing thread of hemp, linen, and ramie)	313113	313113	313110	Fiber, Yarn, and Thread Mills
2299	Textile Goods, NEC (broadwoven fabrics of jute, linen, hemp, and ramie and hand woven fabrics)	313210	313210	313210	Broadwoven Fabric Mills
2299	Textile Goods, NEC (narrow woven fabric of jute, linen, hemp, and ramie)	313221	313221	313220	Narrow Fabric Mills and Schiffli Machine Embroidery
2299	Textile Goods, NEC (nonwoven felt)	313230	313230	313230	Nonwoven Fabric Mills
2299	Textile Goods, NEC (finishing hard fiber thread and yarn without manufacturing thread or yarn)	313312	313312	313310	Textile and Fabric Finishing Mills
2299	Textile Goods, NEC (manufacturing other textile products)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
2311	Men's and Boys' Suits, Coats, and Overcoats (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2311	Men's and Boys' Suits, Coats, and Overcoats (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2311	Men's and Boys' Suits, Coats, and Overcoats (except contractors)	315222	315222	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2321	Men's and Boys' Shirts, Except Work Shirts (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2321	Men's and Boys' Shirts, Except Work Shirts (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2321	Men's and Boys' Shirts, Except Work Shirts (except contractors)	315223	315223	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2322	Men's and Boys' Underwear and Nightwear (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2322	Men's and Boys' Underwear and Nightwear (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2322	Men's and Boys' Underwear and Nightwear (except contractors)	315221	315221	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2323	Men's and Boys' Neckwear (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2323	Men's and Boys' Neckwear (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2323	Men's and Boys' Neckwear (except contractors)	315993	315993	315990	Apparel Accessories and Other Apparel Manufacturing
2325	Men's and Boys' Separate Trousers and Slacks (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2325	Men's and Boys' Separate Trousers and Slacks (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2325	Men's and Boys' Separate Trousers and Slacks (except contractors)	315224	315224	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2326	Men's and Boys' Work Clothing (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills

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2326	Men's and Boys' Work Clothing (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2326	Men's and Boys' Work Clothing (except contractors)	315225	315225	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2329	Men's and Boys' Clothing, NEC (contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2329	Men's and Boys' Clothing, NEC (contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2329	Men's and Boys' Clothing, NEC (except team athletic uniforms and contractors)	315228	315228	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2329	Men's and Boys' Clothing, NEC (team athletic uniforms except contractors)	315299	315299	315280	Other Cut and Sew Apparel Manufacturing
2331	Women's, Misses', and Juniors' Blouses and Shirts (contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2331	Women's, Misses', and Juniors' Blouses and Shirts (contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2331	Women's, Misses', and Juniors' Blouses and Shirts (except contractors)	315232	315232	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2335	Women's, Misses', and Juniors' Dresses (contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2335	Women's, Misses', and Juniors' Dresses (contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2335	Women's, Misses', and Juniors' Dresses (except contractors)	315233	315233	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2337	Women's, Misses', and Juniors' Suits, Skirts, and Coats (contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2337	Women's, Misses', and Juniors' Suits, Skirts, and Coats (contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2337	Women's, Misses', and Juniors' Suits, Skirts, and Coats (except contractors)	315234	315234	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2339	Women's, Misses', and Juniors' Outerwear, NEC (contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2339	Women's, Misses', and Juniors' Outerwear, NEC (contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2339	Women's, Misses', and Juniors' Outerwear, NEC (except team athletic uniforms, scarves, and contractors)	315239	315239	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2339	Women's, Misses', and Juniors' Outerwear, NEC (team athletic uniforms except contractors)	315299	315299	315280	Other Cut and Sew Apparel Manufacturing
2339	Women's, Misses', and Juniors' Outerwear, NEC (scarves except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (boys' except contractors)	315221	315221	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (women and girls' except contractors)	315231	315231	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2341	Women's, Misses', Children's, and Infants' Underwear and Nightwear (infants' except contractors)	315291	315291	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2342	Brassieres, Girdles, and Allied Garments (contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2342	Brassieres, Girdles, and Allied Garments (contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2342	Brassieres, Girdles, and Allied Garments (except contractors)	315231	315231	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2353	Hats, Caps, and Millinery (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2353	Hats, Caps, and Millinery (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors

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2353	Hats, Caps, and Millinery (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2353	Hats, Caps, and Millinery (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2353	Hats, Caps, and Millinery (except contractors)	315991	315991	315990	Apparel Accessories and Other Apparel Manufacturing
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (girls' and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (girls' and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (boys' shirts except contractors)	315223	315223	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (girls' blouses and shirts except contractors)	315232	315232	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (girls' dresses except contractors)	315233	315233	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2361	Girls', Children's, and Infants' Dresses, Blouses, and Shirts (infants' except contractors)	315291	315291	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2369	Girls', Children's, and Infants' Outerwear, NEC (girls' and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2369	Girls', Children's, and Infants' Outerwear, NEC (girls' and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' robes except contractors)	315221	315221	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' suits and coats except contractors)	315222	315222	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' trousers, slacks, and jeans except contractors)	315224	315224	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (boys' other outerwear except contractors)	315228	315228	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (girls' robes except contractors)	315231	315231	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (girls' suits, coats, jackets, and skirts except contractors)	315234	315234	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (girls' other outerwear except contractors)	315239	315239	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2369	Girls', Children's, and Infants' Outerwear, NEC (infants' except contractors)	315291	315291	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2371	Fur Goods (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2371	Fur Goods (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2371	Fur Goods (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2371	Fur Goods (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2371	Fur Goods (except contractors)	315292	315292	315280	Other Cut and Sew Apparel Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2381	Dress and Work Gloves, Except Knit and All-Leather (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2381	Dress and Work Gloves, Except Knit and All-Leather (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2381	Dress and Work Gloves, Except Knit and All-Leather (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2381	Dress and Work Gloves, Except Knit and All-Leather (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2381	Dress and Work Gloves, Except Knit and All-Leather (except contractors)	315992	315992	315990	Apparel Accessories and Other Apparel Manufacturing
2384	Robes and Dressing Gowns (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2384	Robes and Dressing Gowns (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2384	Robes and Dressing Gowns (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2384	Robes and Dressing Gowns (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2384	Robes and Dressing Gowns (men's except contractors)	315221	315221	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2384	Robes and Dressing Gowns (women's except contractors)	315231	315231	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2385	Waterproof Outerwear (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2385	Waterproof Outerwear (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2385	Waterproof Outerwear (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2385	Waterproof Outerwear (men's and boys' water resistant or water repellent tailored overcoats, except made from rubberized fabric, plastics, etc. and contractors)	315222	315222	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (men's and boys' water resistant or water repellent nontailored outerwear, except made from rubberized fabric, plastics, etc. and contractors)	315228	315228	315220	Men's and Boys' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (women's and girls' water resistant or water repellent tailored coats, except made from rubberized fabric, plastics, etc. and contractors)	315234	315234	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (other women's and girls' water resistant or water repellent nontailored outerwear, except made from rubberized fabric, plastics, etc. and contractors)	315239	315239	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (infants' waterproof outerwear made from rubberized fabric, plastics, etc. except contractors)	315291	315291	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (men's, boys', women's, and girls' waterproof outerwear made from rubberized fabric, plastics, etc. except contractors)	315299	315299	315280	Other Cut and Sew Apparel Manufacturing
2385	Waterproof Outerwear (accessories, such as aprons, bibs, and other miscellaneous waterproof items, made from rubberized fabric, plastics, etc. except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
2386	Leather and Sheep-Lined Clothing (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2386	Leather and Sheep-Lined Clothing (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2386	Leather and Sheep-Lined Clothing (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2386	Leather and Sheep-Lined Clothing (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2386	Leather and Sheep-lined Clothing (except contractors)	315292	315292	315280	Other Cut and Sew Apparel Manufacturing
2387	Apparel Belts (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2387	Apparel Belts (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2387	Apparel Belts (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2387	Apparel Belts (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2387	Apparel Belts (except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
2389	Apparel and Accessories, NEC (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2389	Apparel and Accessories, NEC (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2389	Apparel and Accessories, NEC (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2389	Apparel and Accessories, NEC (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2389	Apparel and Accessories, NEC (garters and garter belts except contractors)	315231	315231	315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
2389	Apparel and Accessories, NEC (apparel, such as academic gowns, clerical outerwear, and band uniforms, except contractors)	315299	315299	315280	Other Cut and Sew Apparel Manufacturing
2389	Apparel and Accessories, NEC (accessories such as, handkerchiefs, arm bands, cummerbunds, suspenders, etc., except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
2391	Curtains and Draperies	314121	314121	314120	Curtain and Linen Mills
2392	Housefurnishings, Except Curtains and Draperies (except mops, dust rags, and bags)	314129	314129	314120	Curtain and Linen Mills
2392	Housefurnishings, Except Curtains and Draperies (blanket, laundry, and wardrobe bags)	314911	314911	314910	Textile Bag and Canvas Mills
2392	Housefurnishings, Except Curtains and Draperies (dust rags)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
2392	Housefurnishings, Except Curtains and Draperies (floor and dust mops)	339994	339994	339994	Broom, Brush, and Mop Manufacturing
2393	Textile Bags	314911	314911	314910	Textile Bag and Canvas Mills
2394	Canvas and Related Products	314912	314912	314910	Textile Bag and Canvas Mills
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade (except apparel contractors)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade (men's and boy's apparel contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade (men's and boy's apparel contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade (women's, girls', and infants' apparel contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2395	Pleating, Decorative and Novelty Stitching, and Tucking for the Trade (women's, girls', and infants' apparel contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2396	Automotive Trimmings, Apparel Findings, and Related Products (textile products except automotive and apparel trimmings and findings, printing or embossing on apparel, and contractors)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
2396	Automotive Trimmings, Apparel Findings, and Related Products (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2396	Automotive Trimmings, Apparel Findings, and Related Products (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2396	Automotive Trimmings, Apparel Findings, and Related Products (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2396	Automotive Trimmings, Apparel Findings, and Related Products (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2396	Automotive Trimmings, Apparel Findings, and Related Products (apparel findings and trimmings, except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing

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2396	Automotive Trimmings, Apparel Findings, and Related Products (printing and embossing on fabric articles)	323113	323113	323113	Commercial Screen Printing
2396	Automotive Trimmings, Apparel Findings, and Related Products (textile motor vehicle trimming except contractors)	336360	336360	336360	Motor Vehicle Seating and Interior Trim Manufacturing
2397	Schiffli Machine Embroideries	313222	313222	313220	Narrow Fabric Mills and Schiffli Machine Embroidery
2399	Fabricated Textile Products, NEC (except apparel and accessories, automotive seat belts, seat and tire covers, and contractors)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
2399	Fabricated Textile Products, NEC (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
2399	Fabricated Textile Products, NEC (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
2399	Fabricated Textile Products, NEC (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
2399	Fabricated Textile Products, NEC (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
2399	Fabricated Textile Products, NEC (apparel and apparel accessories, except contractors)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
2399	Fabricated Textile Products, NEC (seat belts, and seat and tire covers)	336360	336360	336360	Motor Vehicle Seating and Interior Trim Manufacturing
2411	Logging	113310	113310	113310	Logging
2421	Sawmills and Planing Mills, General (sawmills)	321113	321113	321113	Sawmills
2421	Sawmills and Planing Mills, General (lumber manufacturing from purchased lumber, softwood cut stock, wood lath, fence pickets, and planing mill products)	321912	321912	321912	Cut Stock, Resawing Lumber, and Planing
2421	Sawmills and Planing Mills, General (softwood flooring)	321918	321918	321918	Other Millwork (including Flooring)
2421	Sawmills and Planing Mills, General (box lumber made from purchased lumber)	321920	321920	321920	Wood Container and Pallet Manufacturing
2421	Sawmills and Planing Mills, General (kiln drying)	321999	321999	321999	All Other Miscellaneous Wood Product Manufacturing
2426	Hardwood Dimension and Flooring Mills (hardwood dimension lumber made from logs or bolts)	321113	321113	321113	Sawmills
2426	Hardwood Dimension and Flooring Mills (hardwood cut stock, resawing hardwood lumber, and planing purchased hardwood lumber except flooring)	321912	321912	321912	Cut Stock, Resawing Lumber, and Planing
2426	Hardwood Dimension and Flooring Mills (hardwood flooring)	321918	321918	321918	Other Millwork (including Flooring)
2426	Hardwood Dimension and Flooring Mills (wood furniture frames and finished furniture parts)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
2429	Special Product Sawmills, NEC (shingle mills, shakes)	321113	321113	321113	Sawmills
2429	Special Product Sawmills, Not Elsewhere Classified (cooperage stock)	321920	321920	321920	Wood Container and Pallet Manufacturing
2429	Special Product Sawmills, NEC (excelsior)	321999	321999	321999	All Other Miscellaneous Wood Product Manufacturing
2431	Millwork (wood windows and doors)	321911	321911	321911	Wood Window and Door Manufacturing
2431	Millwork (except wood doors and windows)	321918	321918	321918	Other Millwork (including Flooring)
2434	Wood Kitchen Cabinets	337110	337110	337110	Wood Kitchen Cabinet and Countertop Manufacturing
2435	Hardwood Veneer and Plywood	321211	321211	321211	Hardwood Veneer and Plywood Manufacturing
2436	Softwood Veneer and Plywood	321212	321212	321212	Softwood Veneer and Plywood Manufacturing
2439	Structural Wood Members, NEC (except trusses)	321213	321213	321213	Engineered Wood Member (except Truss) Manufacturing
2439	Structural Wood Members, NEC (trusses)	321214	321214	321214	Truss Manufacturing
2441	Nailed and Lock Corner Wood Boxes and Shook	321920	321920	321920	Wood Container and Pallet Manufacturing
2448	Wood Pallets and Skids	321920	321920	321920	Wood Container and Pallet Manufacturing
2449	Wood Containers, NEC	321920	321920	321920	Wood Container and Pallet Manufacturing
2451	Mobile Homes	321991	321991	321991	Manufactured Home (Mobile Home) Manufacturing

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2452	Prefabricated Wood Buildings and Components	321992	321992	321992	Prefabricated Wood Building Manufacturing
2491	Wood Preserving	321114	321114	321114	Wood Preservation
2493	Reconstituted Wood Products	321219	321219	321219	Reconstituted Wood Product Manufacturing
2499	Wood Products, NEC (wood containers, such as noncoopered vats and reed or straw baskets)	321920	321920	321920	Wood Container and Pallet Manufacturing
2499	Wood Products, NEC (except wood containers, wood cooling towers, cork life preservers, mirror or picture frames, and laundry hampers of reed, rattan, and willow)	321999	321999	321999	All Other Miscellaneous Wood Product Manufacturing
2499	Wood Products, NEC (wood cooling towers)	333415	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
2499	Wood Products, NEC (laundry hampers of reed, rattan, and willow)	337125	337125	337125	Household Furniture (except Wood and Metal) Manufacturing
2499	Wood Products, NEC (cork life preservers)	339113	339113	339113	Surgical Appliance and Supplies Manufacturing
2499	Wood Products, NEC (mirror and picture frames)	339999	339999	339999	All Other Miscellaneous Manufacturing
2511	Wood Household Furniture, Except Upholstered (except wood box spring frames)	337122	337122	337122	Nonupholstered Wood Household Furniture Manufacturing
2511	Wood Household Furniture, Except Upholstered (wood box spring frames(parts))	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
2512	Wood Household Furniture, Upholstered	337121	337121	337121	Upholstered Household Furniture Manufacturing
2514	Metal Household Furniture (upholstered)	337121	337121	337121	Upholstered Household Furniture Manufacturing
2514	Metal Household Furniture (except upholstered metal furniture and metal box spring frames)	337124	337124	337124	Metal Household Furniture Manufacturing
2514	Metal Household Furniture (metal box spring frames)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
2515	Mattresses, Foundations, and Convertible Beds (convertible beds)	337121	337121	337121	Upholstered Household Furniture Manufacturing
2515	Mattresses, Foundations, and Convertible Beds (mattresses and foundations)	337910	337910	337910	Mattress Manufacturing
2517	Wood Television, Radio, Phonograph, and Sewing Machine Cabinets	337129	337129	321999	All Other Miscellaneous Wood Product Manufacturing
2519	Household Furniture, NEC	337125	337125	337125	Household Furniture (except Wood and Metal) Manufacturing
2521	Wood Office Furniture	337211	337211	337211	Wood Office Furniture Manufacturing
2522	Office Furniture, Except Wood	337214	337214	337214	Office Furniture (except Wood) Manufacturing
2531	Public Building and Related Furniture (seats for motor vehicles)	336360	336360	336360	Motor Vehicle Seating and Interior Trim Manufacturing
2531	Public Building and Related Furniture (except motor vehicle seats and blackboards)	337127	337127	337127	Institutional Furniture Manufacturing
2531	Public Building and Related Furniture (blackboards)	339942	339942	339940	Office Supplies (except Paper) Manufacturing
2541	Wood Office and Store Fixtures, Partitions, Shelving, and Lockers (counter tops)	337110	337110	337110	Wood Kitchen Cabinet and Countertop Manufacturing
2541	Wood Office and Store Fixtures, Partitions, Shelving, and Lockers (wood lunchroom tables and chairs)	337127	337127	337127	Institutional Furniture Manufacturing
2541	Wood Office and Store Fixtures, Partitions, Shelving, and Lockers (custom architectural millwork)	337212	337212	337212	Custom Architectural Woodwork and Millwork Manufacturing
2541	Wood Office and Store Fixtures, Partitions, Shelving, and Lockers (except custom architectural millwork, counter tops, and lunchroom tables and chairs)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2542	Office and Store Fixtures, Partitions, Shelving, and Lockers, Except Wood (lunchroom tables and chairs)	337127	337127	337127	Institutional Furniture Manufacturing
2542	Office and Store Fixtures, Partitions, Shelving, and Lockers, Except Wood (except lunchroom tables and chairs)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
2591	Drapery Hardware and Window Blinds and Shades	337920	337920	337920	Blind and Shade Manufacturing
2599	Furniture and Fixtures, NEC (except hospital beds)	337127	337127	337127	Institutional Furniture Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	337127	337127	Institutional Furniture Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	333999	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	333997	333997	Scale and Balance Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	339113	339113	Surgical Appliance and Supplies Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	333298	333249	Other Industrial Machinery Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
2599	Furniture and Fixtures, NEC (hospital beds)	339111	333994	333994	Industrial Process Furnace and Oven Manufacturing
2611	Pulp Mills (pulp producing mills only)	322110	322110	322110	Pulp Mills
2611	Pulp Mills (pulp mills producing paper except newsprint)	322121	322121	322121	Paper (except Newsprint) Mills
2611	Pulp Mills (pulp mills producing newsprint)	322122	322122	322122	Newsprint Mills
2611	Pulp Mills (pulp mills producing paperboard)	322130	322130	322130	Paperboard Mills
2621	Paper Mills (except newsprint mills)	322121	322121	322121	Paper (except Newsprint) Mills
2621	Paper Mills (newsprint mills)	322122	322122	322122	Newsprint Mills
2631	Paperboard Mills	322130	322130	322130	Paperboard Mills
2652	Setup Paperboard Boxes	322213	322213	322219	Other Paperboard Container Manufacturing
2653	Corrugated and Solid Fiber Boxes	322211	322211	322211	Corrugated and Solid Fiber Box Manufacturing
2655	Fiber Cans, Tubes, Drums, and Similar Products	322214	322214	322219	Other Paperboard Container Manufacturing
2656	Sanitary Food Containers, Except Folding	322215	322215	322219	Other Paperboard Container Manufacturing
2657	Folding Paperboard Boxes, Including Sanitary (except paperboard backs for blister or skin packages)	322212	322212	322212	Folding Paperboard Box Manufacturing
2671	Packaging Paper and Plastics Film, Coated and Laminated (except single-web and multi-web plastics packaging film and sheet)	322221	322221	322220	Paper Bag and Coated and Treated Paper Manufacturing
2671	Packaging Paper and Plastics Film, Coated and Laminated (single-web and multi-web plastics packaging film and sheet)	326112	326112	326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing
2672	Coated and Laminated Paper, NEC	322222	322222	322220	Paper Bag and Coated and Treated Paper Manufacturing
2673	Plastics, Foil, and Coated Paper Bags (except single web or multi-web plastic bags)	322223	322223	322220	Paper Bag and Coated and Treated Paper Manufacturing
2673	Plastics, Foil, and Coated Paper Bags (single-web and multi-web plastics bags)	326111	326111	326111	Plastics Bag and Pouch Manufacturing
2674	Uncoated Paper and Multiwall Bags	322224	322224	322220	Paper Bag and Coated and Treated Paper Manufacturing
2675	Die-Cut Paper and Paperboard and Cardboard (pasted, lined, laminated, or surface-coated paperboard)	322226	322226	322220	Paper Bag and Coated and Treated Paper Manufacturing
2675	Die-Cut Paper and Paperboard and Cardboard (die-cut paper and paperboard office supplies, such as file folders, tabulating cards, and report covers)	322231	322231	322230	Stationery Product Manufacturing
2675	Die-Cut Paper and Paperboard and Cardboard (except pasted, lined, laminated, or surface coated paperboard and die-cut paper and paperboard office supplies)	322299	322299	322299	All Other Converted Paper Product Manufacturing
2676	Sanitary Paper Products	322291	322291	322291	Sanitary Paper Product Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2677	Envelopes	322232	322232	322230	Stationery Product Manufacturing
2678	Stationery, Tablets, and Related Products	322233	322233	322230	Stationery Product Manufacturing
2679	Converted Paper and Paperboard Products, NEC (corrugated paper)	322211	322211	322211	Corrugated and Solid Fiber Box Manufacturing
2679	Converted Paper and Paperboard Products, NEC (wallpaper and gift wrap paper)	322222	322222	322220	Paper Bag and Coated and Treated Paper Manufacturing
2679	Converted Paper and Paperboard Products, NEC (paper supplies for business machines, such as adding machine tape, and other paper office supplies)	322231	322231	322230	Stationery Product Manufacturing
2679	Converted Paper and Paperboard Products, NEC (except corrugated paper, wall paper, gift wrap paper, paper supplies for business machines, and other paper office supplies)	322299	322299	322299	All Other Converted Paper Product Manufacturing
2711	Newspapers: Publishing, or Publishing and Printing (except Internet newspaper publishing)	511110	511110	511110	Newspaper Publishers
2711	Newspapers: Publishing, or Publishing and Printing (Internet newspaper publishing)	516110	519130	519130	Internet Publishing and Broadcasting and Web Search Portals
2721	Periodicals: Publishing, or Publishing and Printing (except Internet periodical publishing)	511120	511120	511120	Periodical Publishers
2721	Periodicals: Publishing, or Publishing and Printing (Internet periodical publishing)	516110	519130	519130	Internet Publishing and Broadcasting and Web Search Portals
2731	Books: Publishing, or Publishing and Printing (except music books and Internet book publishing)	511130	511130	511130	Book Publishers
2731	Books: Publishing, or Publishing and Printing (music books)	512230	512230	512230	Music Publishers
2731	Books: Publishing, or Publishing and Printing (Internet book publishing)	516110	519130	519130	Internet Publishing and Broadcasting and Web Search Portals
2732	Book Printing	323117	323117	323117	Books Printing
2741	Miscellaneous Publishing (shopping news and advertising periodical publishing or publishing and printing except Internet)	511120	511120	511120	Periodical Publishers
2741	Miscellaneous Publishing (technical manuals and books publishing or publishing and printing, except Internet)	511130	511130	511130	Book Publishers
2741	Miscellaneous Publishing (directory publishers, except Internet publishers)	511140	511140	511140	Directory and Mailing List Publishers
2741	Miscellaneous Publishing (except database, advertising periodicals, shopping news, technical manuals and books, and sheet music publishing or publishing and printing and Internet versions of these activities)	511199	511199	511199	All Other Publishers
2741	Miscellaneous Publishing (sheet music publishing or publishing and printing)	512230	512230	512230	Music Publishers
2741	Miscellaneous Publishing (miscellaneous Internet publishing)	516110	519130	519130	Internet Publishing and Broadcasting and Web Search Portals
2752	Commercial Printing, Lithographic (except quick printing)	323110	323110	323111	Commercial Printing (except Screen and Books)
2752	Commercial Printing, Lithographic (quick printing)	323114	323114	323111	Commercial Printing (except Screen and Books)
2754	Commercial Printing, Gravure	323111	323111	323111	Commercial Printing (except Screen and Books)
2759	Commercial Printing, NEC (flexographic printing)	323112	323112	323111	Commercial Printing (except Screen and Books)
2759	Commercial Printing, NEC (screen printing)	323113	323113	323113	Commercial Screen Printing
2759	Commercial Printing, NEC (quick printing)	323114	323114	323111	Commercial Printing (except Screen and Books)
2759	Commercial Printing, NEC (digital printing, except quick printing)	323115	323115	323111	Commercial Printing (except Screen and Books)
2759	Commercial Printing, NEC (other commercial printing except flexographic, screen, digital, and quick printing)	323119	323119	323111	Commercial Printing (except Screen and Books)
2761	Manifold Business Forms	323116	323116	323111	Commercial Printing (except Screen and Books)
2771	Greeting Cards (lithographic printing of greeting cards)	323110	323110	323111	Commercial Printing (except Screen and

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
					Books)
2771	Greeting Cards (gravure printing of greeting cards)	323111	323111	323111	Commercial Printing (except Screen and Books)
2771	Greeting Cards (flexographic printing of greeting cards)	323112	323112	323111	Commercial Printing (except Screen and Books)
2771	Greeting Cards (screen printing of greeting cards)	323113	323113	323113	Commercial Screen Printing
2771	Greeting Cards (other printing of greeting cards)	323119	323119	323111	Commercial Printing (except Screen and Books)
2771	Greeting Cards (publishing greeting cards except Internet greeting card publishers)	511191	511191	511191	Greeting Card Publishers
2771	Greeting Cards (Internet greeting card publishers)	516110	519130	519130	Internet Publishing and Broadcasting and Web Search Portals
2782	Blankbooks, Looseleaf Binders and Devices (checkbooks)	323116	323116	323111	Commercial Printing (except Screen and Books)
2782	Blankbooks, Looseleaf Binders and Devices (except checkbooks)	323118	323118	323111	Commercial Printing (except Screen and Books)
2789	Bookbinding and Related Work	323121	323121	323120	Support Activites for Printing
2791	Typesetting	323122	323122	323120	Support Activites for Printing
2796	Platemaking and Related Services	323122	323122	323120	Support Activites for Printing
2812	Alkalies and Chlorine	325181	325181	325180	Other Basic Inorganic Chemical Manufacturing
2813	Industrial Gases	325120	325120	325120	Industrial Gas Manufacturing
2816	Inorganic Pigments (except bone and lamp black)	325131	325131	325130	Synthetic Dye and Pigment Manufacturing
2816	Inorganic Pigments (bone and lamp black)	325182	325182	325180	Other Basic Inorganic Chemical Manufacturing
2819	Industrial Inorganic Chemicals, NEC (recovering sulfur from natural gas)	211112	211112	211112	Natural Gas Liquid Extraction
2819	Industrial Inorganic Chemicals, NEC (inorganic dyes)	325131	325131	325130	Synthetic Dye and Pigment Manufacturing
2819	Industrial Inorganic Chemicals, NEC (except activated carbon and charcoal, alumina, recovering sulfur from natural gas, and inorganic dyes)	325188	325188	325180	Other Basic Inorganic Chemical Manufacturing
2819	Industrial Inorganic Chemicals, NEC (activated carbon and charcoal)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
2819	Industrial Inorganic Chemicals, NEC (alumina)	331311	331311	331313	Alumina Refining and Primary Aluminum Production
2821	Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers	325211	325211	325211	Plastics Material and Resin Manufacturing
2822	Synthetic Rubber	325212	325212	325212	Synthetic Rubber Manufacturing
2823	Cellulosic Manmade Fibers	325221	325221	325220	Artificial and Synthetic Fibers and Filaments Manufacturing
2824	Manmade Organic Fibers, Except Cellulosic	325222	325222	325220	Artificial and Synthetic Fibers and Filaments Manufacturing
2833	Medicinal Chemicals and Botanical Products	325411	325411	325411	Medicinal and Botanical Manufacturing
2834	Pharmaceutical Preparations	325412	325412	325412	Pharmaceutical Preparation Manufacturing
2835	In Vitro and In Vivo Diagnostic Substances (except in-vitro diagnostic substances)	325412	325412	325412	Pharmaceutical Preparation Manufacturing
2835	In Vitro and In Vivo Diagnostic Substances (in-vitro diagnostic substances)	325413	325413	325413	In-Vitro Diagnostic Substance Manufacturing
2836	Biological Products, Except Diagnostic Substances	325414	325414	325414	Biological Product (except Diagnostic) Manufacturing
2841	Soaps and Other Detergents, Except Specialty Cleaners	325611	325611	325611	Soap and Other Detergent Manufacturing
2842	Specialty Cleaning, Polishing, and Sanitation Preparations	325612	325612	325612	Polish and Other Sanitation Good Manufacturing
2843	Surface Active Agents, Finishing Agents, Sulfonated Oils, and Assistants	325613	325613	325613	Surface Active Agent Manufacturing
2844	Perfumes, Cosmetics, and Other Toilet Preparations (toothpaste, gel, and dentifrice powders)	325611	325611	325611	Soap and Other Detergent Manufacturing
2844	Perfumes, Cosmetics, and Other Toilet Preparations (except toothpaste, gel, and dentifrice powders)	325620	325620	325620	Toilet Preparation Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
2851	Paints, Varnishes, Lacquers, Enamels and Allied Products	325510	325510	325510	Paint and Coating Manufacturing
2861	Gum and Wood Chemicals	325191	325191	325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing
2865	Cyclic Organic Crudes and Intermediates, and Organic Dyes and Pigments (aromatics)	325110	325110	325110	Petrochemical Manufacturing
2865	Cyclic Organic Crudes and Intermediates, and Organic Dyes and Pigments (organic dyes and pigments)	325132	325132	325130	Synthetic Dye and Pigment Manufacturing
2865	Cyclic Organic Crudes and Intermediates and Organic Dyes and Pigments (except aromatics and organic dyes and pigments)	325192	325192	325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing
2869	Industrial Organic Chemicals, NEC (aliphatics)	325110	325110	325110	Petrochemical Manufacturing
2869	Industrial Organic Chemicals, NEC (fluorocarbon gases)	325120	325120	325120	Industrial Gas Manufacturing
2869	Industrial Organic Chemicals, NEC (carbon bisulfide)	325188	325188	325180	Other Basic Inorganic Chemical Manufacturing
2869	Industrial Organic Chemicals, NEC (cyclopropane, diethylcyclohexane, naphthalene sulfonic acid)	325192	325192	325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing
2869	Industrial Organic Chemicals, NEC (ethyl alcohol)	325193	325193	325193	Ethyl Alcohol Manufacturing
2869	Industrial Organic Chemicals, NEC (except aliphatics, carbon bisulfide, ethyl alcohol, cyclopropane, diethylcyclohexane, napthalene sulfonic acid, synthetic hydraulic fluids, and fluorocarbon gases)	325199	325199	325199	All Other Basic Organic Chemical Manufacturing
2869	Industrial Organic Chemicals, NEC (synthetic hydraulic fluids)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
2873	Nitrogenous Fertilizers	325311	325311	325311	Nitrogenous Fertilizer Manufacturing
2874	Phosphatic Fertilizers	325312	325312	325312	Phosphatic Fertilizer Manufacturing
2875	Fertilizers, Mixing Only	325314	325314	325314	Fertilizer (Mixing Only) Manufacturing
2879	Pesticides and Agricultural Chemicals, NEC	325320	325320	325320	Pesticide and Other Agricultural Chemical Manufacturing
2891	Adhesives and Sealants	325520	325520	325520	Adhesive Manufacturing
2892	Explosives	325920	325920	325920	Explosives Manufacturing
2893	Printing Ink	325910	325910	325910	Printing Ink Manufacturing
2895	Carbon Black	325182	325182	325180	Other Basic Inorganic Chemical Manufacturing
2899	Chemicals and Chemical Preparations, NEC (table salt)	311942	311942	311942	Spice and Extract Manufacturing
2899	Chemicals and Chemical Preparations, NEC (fatty acids)	325199	325199	325199	All Other Basic Organic Chemical Manufacturing
2899	Chemicals and Chemical Preparations, NEC (frit and plastic wood fillers)	325510	325510	325510	Paint and Coating Manufacturing
2899	Chemicals and Chemical Preparations, NEC (except frit, fatty acids, plastic wood fillers, and table salt)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
2911	Petroleum Refining	324110	324110	324110	Petroleum Refineries
2951	Asphalt Paving Mixtures and Blocks	324121	324121	324121	Asphalt Paving Mixture and Block Manufacturing
2952	Asphalt Felts and Coatings	324122	324122	324122	Asphalt Shingle and Coating Materials Manufacturing
2992	Lubricating Oils and Greases	324191	324191	324191	Petroleum Lubricating Oil and Grease Manufacturing
2999	Products of Petroleum and Coal, NEC	324199	324199	324199	All Other Petroleum and Coal Products Manufacturing
3011	Tires and Inner Tubes	326211	326211	326211	Tire Manufacturing (except Retreading)
3021	Rubber and Plastics Footwear	316211	316211	316210	Footwear Manufacturing
3052	Rubber and Plastics Hose and Belting	326220	326220	326220	Rubber and Plastics Hoses and Belting Manufacturing
3053	Gaskets, Packing, and Sealing Devices	339991	339991	339991	Gasket, Packing, and Sealing Device Manufacturing
3061	Molded, Extruded, and Lathe-Cut Mechanical Rubber Goods	326291	326299	326299	All Other Rubber Product Manufacturing
3061	Molded, Extruded, and Lathe-Cut Mechanical Rubber Goods	326291	326291	326291	Rubber Product Manufacturing for Mechanical Use

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3069	Fabricated Rubber Products, NEC (rubberizing fabric or purchased textile products)	313320	313320	313320	Fabric Coating Mills
3069	Fabricated Rubber Products, NEC (bags made from rubberized fabric)	314911	314911	314910	Textile Bag and Canvas Mills
3069	Fabricated Rubber Products, NEC (rubber cut and sew outerwear)	315299	315299	315280	Other Cut and Sew Apparel Manufacturing
3069	Fabricated Rubber Products, NEC (bibs, bathing caps, related rubber accessories)	315999	315999	315990	Apparel Accessories and Other Apparel Manufacturing
3069	Fabricated Rubber Products, NEC (rubber resilient floor coverings)	326192	326192	326199	All Other Plastics Product Manufacturing
3069	Fabricated Rubber Products, NEC (except rubberized fabric and garments, gloves, life vests, wet suits, accessories, such as bibs and bathing caps, rubber toys, bags made from rubberized fabric, rubber diaper covers, and rubber resilient floor coverings)	326299	326299	326299	All Other Rubber Product Manufacturing
3069	Fabricated Rubber Products, NEC (except rubberized fabric and garments, gloves, life vests, wet suits, accessories, such as bibs and bathing caps, rubber toys, bags made from rubberized fabric, rubber diaper covers, and rubber resilient floor coverings)	326299	336612	336612	Boat Building
3069	Fabricated Rubber Products, NEC (rubber gloves, inflatable rubber lifejackets)	339113	339113	339113	Surgical Appliance and Supplies Manufacturing
3069	Fabricated Rubber Products, NEC (wet suits)	339920	339920	339920	Sporting and Athletic Goods Manufacturing
3069	Fabricated Rubber Products, NEC (rubber toys, except dolls)	339932	339932	339930	Doll, Toy, and Game Manufacturing
3081	Unsupported Plastics Film and Sheet	326113	326113	326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing
3082	Unsupported Plastics Profile Shapes	326121	326121	326121	Unlaminated Plastics Profile Shape Manufacturing
3083	Laminated Plastics Plate, Sheet, and Profile Shapes	326130	326130	326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing
3084	Plastics Pipe	326122	326122	326122	Plastics Pipe and Pipe Fitting Manufacturing
3085	Plastics Bottles	326160	326160	326160	Plastics Bottle Manufacturing
3086	Plastics Foam Products (polystyrene foam products)	326140	326140	326140	Polystyrene Foam Product Manufacturing
3086	Plastics Foam Products (except polystyrene foam products)	326150	326150	326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing
3087	Custom Compounding of Purchased Plastics Resins	325991	325991	325991	Custom Compounding of Purchased Resins
3088	Plastics Plumbing Fixtures	326191	326191	326191	Plastics Plumbing Fixture Manufacturing
3089	Plastics Products, NEC (plastics sausage casings)	326121	326121	326121	Unlaminated Plastics Profile Shape Manufacturing
3089	Plastics Products, NEC (pipe fittings)	326122	326122	326122	Plastics Pipe and Pipe Fitting Manufacturing
3089	Plastics Products, NEC (except plastics pipe fittings, inflatable plastics life jackets, plastics furniture parts, and plastics sausage casings)	326199	326199	326199	All Other Plastics Product Manufacturing
3089	Plastics Products, NEC (except plastics pipe fittings, inflatable plastics life jackets, plastics furniture parts, and plastics sausage casings)	326199	336612	336612	Boat Building
3089	Plastics Products, NEC (finished plastic furniture parts)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
3089	Plastics Products, NEC (inflatable plastic life jackets)	339113	339113	339113	Surgical Appliance and Supplies Manufacturing
3111	Leather Tanning and Finishing	316110	316110	316110	Leather and Hide Tanning and Finishing
3131	Boot and Shoe Cut Stock and Findings (except wood heels and metal buckles)	316999	316999	316998	All Other Leather Good and Allied Product Manufacturing
3131	Boot and Shoe Cut Stock and Findings (wood heels)	321999	321999	321999	All Other Miscellaneous Wood Product Manufacturing
3131	Boot and Shoe Cut Stock and Findings (metal buckles)	339993	339993	339993	Fastener, Button, Needle, and Pin Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3142	House Slippers	316212	316212	316210	Footwear Manufacturing
3143	Men's Footwear, Except Athletic	316213	316213	316210	Footwear Manufacturing
3144	Women's Footwear, Except Athletic	316214	316214	316210	Footwear Manufacturing
3149	Footwear, Except Rubber, NEC	316219	316219	316210	Footwear Manufacturing
3151	Leather Gloves and Mittens (men's and boys' contractors)	315211	314999	314999	All Other Miscellaneous Textile Product Mills
3151	Leather Gloves and Mittens (men's and boys' contractors)	315211	315211	315210	Cut and Sew Apparel Contractors
3151	Leather Gloves and Mittens (women's, girls', and infants' contractors)	315212	314999	314999	All Other Miscellaneous Textile Product Mills
3151	Leather Gloves and Mittens (women's, girls', and infants' contractors)	315212	315212	315210	Cut and Sew Apparel Contractors
3151	Leather Gloves and Mittens (except contractors)	315992	315992	315990	Apparel Accessories and Other Apparel Manufacturing
3161	Luggage	316991	316991	316998	All Other Leather Good and Allied Product Manufacturing
3171	Women's Handbags and Purses	316992	316992	316992	Women's Handbag and Purse Manufacturing
3172	Personal Leather Goods, Except Women's Handbags and Purses (except nonprecious metal personal goods, such as card cases, cigar cases, and comb cases)	316993	316993	316998	All Other Leather Good and Allied Product Manufacturing
3172	Personal Leather Goods, Except Women's Handbags and Purses (nonprecious metal personal goods, such as card cases, cigar cases, and comb cases)	339914	339914	339910	Jewelry and Silverware Manufacturing
3199	Leather Goods, NEC	316999	316999	316998	All Other Leather Good and Allied Product Manufacturing
3211	Flat Glass	327211	327211	327211	Flat Glass Manufacturing
3221	Glass Containers	327213	327213	327213	Glass Container Manufacturing
3229	Pressed and Blown Glass and Glassware, NEC	327212	327212	327212	Other Pressed and Blown Glass and Glassware Manufacturing
3231	Glass Products Made of Purchased Glass	327215	327215	327215	Glass Product Manufacturing Made of Purchased Glass
3241	Cement, Hydraulic	327310	327310	327310	Cement Manufacturing
3251	Brick and Structural Clay Tile (except slumped brick)	327121	327121	327120	Clay Building Material and Refractories Manufacturing
3251	Brick and Structural Clay Tile (slumped brick)	327331	327331	327331	Concrete Block and Brick Manufacturing
3253	Ceramic Wall and Floor Tile	327122	327122	327120	Clay Building Material and Refractories Manufacturing
3255	Clay Refractories	327124	327124	327120	Clay Building Material and Refractories Manufacturing
3259	Structural Clay Products, NEC	327123	327123	327120	Clay Building Material and Refractories Manufacturing
3261	Vitreous China Plumbing Fixtures and China and Earthenware Fittings and Bathroom Accessories	327111	327111	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3262	Vitreous China Table and Kitchen Articles	327112	327112	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3263	Fine Earthenware (Whiteware) Table and Kitchen Articles	327112	327112	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3264	Porcelain Electrical Supplies	327113	327113	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3269	Pottery Products, NEC	327112	327112	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3271	Concrete Block and Brick	327331	327331	327331	Concrete Block and Brick Manufacturing
3272	Concrete Products, Except Block and Brick (concrete pipe)	327332	327332	327332	Concrete Pipe Manufacturing
3272	Concrete Products, Except Block and Brick (concrete products, except dry mix concrete and pipe)	327390	327390	327390	Other Concrete Product Manufacturing
3272	Concrete Products, Except Block and Brick (dry mixture concrete)	327999	327999	327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
3273	Ready-Mixed Concrete	327320	327320	327320	Ready-Mix Concrete Manufacturing
3274	Lime	327410	327410	327410	Lime Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3275	Gypsum Products	327420	327420	327420	Gypsum Product Manufacturing
3281	Cut Stone and Stone Products	327991	327991	327991	Cut Stone and Stone Product Manufacturing
3291	Abrasive Products (except steel wool with or without soap)	327910	327910	327910	Abrasive Product Manufacturing
3291	Abrasive Products (steel wool with or without soap)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3292	Asbestos Products (except brake pads and linings)	327999	327999	327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
3292	Asbestos Products (asbestos brake linings and pads)	336340	336340	336340	Motor Vehicle Brake System Manufacturing
3292	Asbestos Products (asbestos clutch facings, motor vehicle)	336350	336350	336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
3295	Minerals and Earths, Ground or Otherwise Treated (grinding, washing, separating, etc. of kaolin and ball clay)	212324	212324	212324	Kaolin and Ball Clay Mining
3295	Minerals and Earths, Ground or Otherwise Treated (grinding, washing, separating, etc. of clay, ceramic, and refractory minerals nec)	212325	212325	212325	Clay and Ceramic and Refractory Minerals Mining
3295	Minerals and Earths, Ground or Otherwise Treated (grinding, washing, separating, etc. of chemical and fertilizer minerals, nec)	212393	212393	212393	Other Chemical and Fertilizer Mineral Mining
3295	Minerals and Earths, Ground or Otherwise Treated (grinding, washing, separating, etc. of nonmetallic minerals, nec)	212399	212399	212399	All Other Nonmetallic Mineral Mining
3295	Minerals and Earths, Ground or Otherwise Treated (except grinding, washing, separating, etc. of nonmetallic minerals)	327992	327992	327992	Ground or Treated Mineral and Earth Manufacturing
3296	Mineral Wool	327993	327993	327993	Mineral Wool Manufacturing
3297	Nonclay Refractories	327125	327125	327120	Clay Building Material and Refractories Manufacturing
3299	Nonmetallic Mineral Products, NEC (clay statuary)	327112	327112	327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
3299	Nonmetallic Mineral Products, NEC (moldings, ornamental and architectural plaster work, and gypsum statuary)	327420	327420	327420	Gypsum Product Manufacturing
3299	Nonmetallic Mineral Products, NEC (except moldings, ornamental and architectural plaster work, clay statuary, and gypsum statuary)	327999	327999	327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
3312	Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills (coke ovens)	324199	324199	324199	All Other Petroleum and Coal Products Manufacturing
3312	Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills (except coke ovens not integrated with steel mills and hot-rolling purchased steel)	331111	331111	331110	Iron and Steel Mills and Ferroalloy Manufacturing
3312	Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills (hot-rolling purchased steel)	331221	331221	331221	Rolled Steel Shape Manufacturing
3313	Electrometallurgical Products, Except Steel	331112	331112	331110	Iron and Steel Mills and Ferroalloy Manufacturing
3315	Steel Wiredrawing and Steel Nails and Spikes (steel wire drawing)	331222	331222	331222	Steel Wire Drawing
3315	Steel Wiredrawing and Steel Nails and Spikes (nails, spikes, paper clips, and wire not made in wiredrawing plants)	332618	332618	332618	Other Fabricated Wire Product Manufacturing
3316	Cold-Rolled Steel Sheet, Strip, and Bars	331221	331221	331221	Rolled Steel Shape Manufacturing
3317	Steel Pipe and Tubes	331210	331210	331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel
3321	Gray and Ductile Iron Foundries	331511	331511	331511	Iron Foundries
3322	Malleable Iron Foundries	331511	331511	331511	Iron Foundries
3324	Steel Investment Foundries	331512	331512	331512	Steel Investment Foundries
3325	Steel Foundries, NEC	331513	331513	331513	Steel Foundries (except Investment)
3331	Primary Smelting and Refining of Copper	331411	331411	331410	Nonferrous Metal (except Aluminum) Smelting and Refining
3334	Primary Production of Aluminum	331312	331312	331313	Alumina Refining and Primary Aluminum Production

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3339	Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum	331419	331419	331410	Nonferrous Metal (except Aluminum) Smelting and Refining
3341	Secondary Smelting and Refining of Nonferrous Metals (aluminum)	331314	331314	331314	Secondary Smelting and Alloying of Aluminum
3341	Secondary Smelting and Refining of Nonferrous Metals (copper)	331423	331423	331420	Copper Rolling, Drawing, Extruding, and Alloying
3341	Secondary Smelting and Refining of Nonferrous Metals (except copper and aluminum)	331492	331492	331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)
3351	Rolling, Drawing, and Extruding of Copper	331421	331421	331420	Copper Rolling, Drawing, Extruding, and Alloying
3353	Aluminum Sheet, Plate, and Foil	331315	331315	331315	Aluminum Sheet, Plate, and Foil Manufacturing
3354	Aluminum Extruded Products	331316	331316	331318	Other Aluminum Rolling, Drawing, and Extruding
3355	Aluminum Rolling and Drawing, NEC	331319	331319	331318	Other Aluminum Rolling, Drawing, and Extruding
3356	Rolling, Drawing, and Extruding of Nonferrous Metals, Except Copper and Aluminum	331491	331491	331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
3357	Drawing and Insulating of Nonferrous Wire (aluminum wire drawing)	331319	331319	331318	Other Aluminum Rolling, Drawing, and Extruding
3357	Drawing and Insulating of Nonferrous Wire (copper wire drawing)	331422	331422	331420	Copper Rolling, Drawing, Extruding, and Alloying
3357	Drawing and Insulating of Nonferrous Wire (wire drawing except copper or aluminum)	331491	331491	331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
3357	Drawing and Insulating of Nonferrous Wire (fiber optic cable-insulating only)	335921	335921	335921	Fiber Optic Cable Manufacturing
3357	Drawing and Insulating of Nonferrous Wire (communication and energy wire, except fiber optic-insulating only)	335929	335929	335929	Other Communication and Energy Wire Manufacturing
3363	Aluminum Die-Castings	331521	331521	331523	Nonferrous Metal Die-Casting Foundries
3364	Nonferrous Die-Castings, Except Aluminum	331522	331522	331523	Nonferrous Metal Die-Casting Foundries
3365	Aluminum Foundries	331524	331524	331524	Aluminum Foundries (except Die-Casting)
3366	Copper Foundries	331525	331525	331529	Other Nonferrous Metal Foundries (except Die-Casting)
3369	Nonferrous Foundries, Except Aluminum and Copper	331528	331528	331529	Other Nonferrous Metal Foundries (except Die-Casting)
3398	Metal Heat Treating	332811	332811	332811	Metal Heat Treating
3399	Primary Metal Products, NEC (iron ore recovery from open hearth slag)	331111	331111	331110	Iron and Steel Mills and Ferroalloy Manufacturing
3399	Primary Metal Products, NEC (ferrous powder, paste, flakes, etc.)	331221	331221	331221	Rolled Steel Shape Manufacturing
3399	Primary Metal Products, NEC (aluminum powder, paste, flakes, etc.)	331314	331314	331314	Secondary Smelting and Alloying of Aluminum
3399	Primary Metal Products, NEC (copper powder, paste, flakes, etc.)	331423	331423	331420	Copper Rolling, Drawing, Extruding, and Alloying
3399	Primary Metal Products, NEC (nonferrous powder, paste, flakes, etc. except copper and aluminum)	331492	331492	331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)
3399	Primary Metal Products, NEC (nonferrous nails, brads, staples, tacks, etc. made from purchased nonferrous wire)	332618	332618	332618	Other Fabricated Wire Product Manufacturing
3399	Primary Metal Products, NEC (laminating steel for the trade)	332813	332813	332813	Electroplating, Plating, Polishing, Anodizing, and Coloring
3411	Metal Cans	332431	332431	332431	Metal Can Manufacturing
3412	Metal Shipping Barrels, Drums, Kegs, and Pails	332439	332439	332439	Other Metal Container Manufacturing
3421	Cutlery (except hedge shears and trimmers, tinners' snips, and similar nonelectric hand tools)	332211	332211	332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
3421	Cutlery (hedge shears and trimmers, tinners snips, and similar nonelectric hand tools)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3423	Hand and Edge Tools, Except Machine Tools and Handsaws	332212	332212	332216	Saw Blade and Handtool Manufacturing
3425	Saw Blades and Handsaws	332213	332213	332216	Saw Blade and Handtool Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3429	Hardware, NEC (vacuum and insulated bottles, jugs, and chests)	332439	332439	332439	Other Metal Container Manufacturing
3429	Hardware, NEC (except fire hose nozzles, hose couplings, vacuum and insulated bottles, jugs and chests, fireplace fixtures, time locks, turnbuckles, pulleys, tackle blocks, luggage and utility racks, sleep sofa mechanisms and chair glides, traps, handcuff	332510	332510	332510	Hardware Manufacturing
3429	Hardware, NEC (turnbuckles and hose clamps)	332722	332722	332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing
3429	Hardware, NEC (fire hose nozzles and hose couplings)	332919	332919	332919	Other Metal Valve and Pipe Fitting Manufacturing
3429	Hardware, NEC (fireplace fixtures, traps, handcuffs and leg irons, ladder jacks, and other like metal products)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3429	Hardware, NEC (pulleys, tackle blocks, block and tackle assemblies)	333923	333923	333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing
3429	Hardware, NEC (time locks)	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3429	Hardware, NEC (luggage and utility racks)	336399	336399	336390	Other Motor Vehicle Parts Manufacturing
3429	Hardware, NEC (sleep sofa mechanisms and chair glides)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
3431	Enameled Iron and Metal Sanitary Ware	332998	332998	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3432	Plumbing Fixture Fittings and Trim (except shower rods, lawn hose nozzles, and lawn sprinklers)	332913	332913	332913	Plumbing Fixture Fitting and Trim Manufacturing
3432	Plumbing Fixture Fittings and Trim (lawn hose nozzles and lawn sprinklers)	332919	332919	332919	Other Metal Valve and Pipe Fitting Manufacturing
3432	Plumbing Fixture Fittings and Trim (metal shower rods)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3433	Heating Equipment, Except Electric and Warm Air Furnaces	333414	333414	333414	Heating Equipment (except Warm Air Furnaces) Manufacturing
3441	Fabricated Structural Metal	332312	332312	332312	Fabricated Structural Metal Manufacturing
3442	Metal Doors, Sash, Frames, Molding, and Trim	332321	332321	332321	Metal Window and Door Manufacturing
3443	Fabricated Plate Work (Boiler Shops) (fabricated plate work and metal weldments)	332313	332313	332313	Plate Work Manufacturing
3443	Fabricated Plate Work (Boiler Shops) (power boilers and heat exchangers)	332410	332410	332410	Power Boiler and Heat Exchanger Manufacturing
3443	Fabricated Plate Work (Boiler Shops) (heavy gauge tanks)	332420	332420	332420	Metal Tank (Heavy Gauge) Manufacturing
3443	Fabricated Plate Work (Boiler Shops) (metal cooling towers)	333415	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
3444	Sheet Metal Work (stamped metal skylights)	332321	332321	332321	Metal Window and Door Manufacturing
3444	Sheet Metal Work (except sheet metal bins and vats, skylights, and sheet metal cooling towers)	332322	332322	332322	Sheet Metal Work Manufacturing
3444	Sheet Metal Work (metal bins and vats)	332439	332439	332439	Other Metal Container Manufacturing
3444	Sheet Metal Work (cooling towers, sheet metal)	333415	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
3446	Architectural and Ornamental Metal Work	332323	332323	332323	Ornamental and Architectural Metal Work Manufacturing
3448	Prefabricated Metal Buildings and Components	332311	332311	332311	Prefabricated Metal Building and Component Manufacturing
3449	Miscellaneous Structural Metal Work (custom roll forming)	332114	332114	332114	Custom Roll Forming
3449	Miscellaneous Structural Metal Work (fabricated bar joists and concrete reinforcing bars)	332312	332312	332312	Fabricated Structural Metal Manufacturing
3449	Miscellaneous Structural Metal Work (curtain wall and metal plaster bases and lath)	332323	332323	332323	Ornamental and Architectural Metal Work Manufacturing
3451	Screw Machine Products	332721	332721	332721	Precision Turned Product Manufacturing
3452	Bolts, Nuts, Screws, Rivets, and Washers	332722	332722	332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3462	Iron and Steel Forgings	332111	332111	332111	Iron and Steel Forging
3463	Nonferrous Forgings	332112	332112	332112	Nonferrous Forging
3465	Automotive Stampings	336370	336370	336370	Motor Vehicle Metal Stamping
3466	Crowns and Closures	332115	332115	332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)
3469	Metal Stampings, NEC (except kitchen utensils, pots and pans for cooking, coins, and stamped metal boxes)	332116	332116	332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)
3469	Metal Stampings, NEC (kitchen utensils, pots, and pans for cooking)	332214	332214	332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
3469	Metal Stampings, NEC (stamped metal tool, cash, mail, and lunch boxes)	332439	332439	332439	Other Metal Container Manufacturing
3471	Electroplating, Plating, Polishing, Anodizing, and Coloring	332813	332813	332813	Electroplating, Plating, Polishing, Anodizing, and Coloring
3479	Coating, Engraving, and Allied Services, NEC (except jewelry, silverware, and flatware engraving and etching)	332812	332812	332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
3479	Coating, Engraving, and Allied Services, NEC (precious metal jewelry engraving and etching)	339911	339911	339910	Jewelry and Silverware Manufacturing
3479	Coating, Engraving, and Allied Services, NEC (silver and plated ware engraving and etching)	339912	339912	339910	Jewelry and Silverware Manufacturing
3479	Coating, Engraving, and Allied Services, NEC (costume jewelry engraving and etching)	339914	339914	339910	Jewelry and Silverware Manufacturing
3482	Small Arms Ammunition	332992	332992	332992	Small Arms Ammunition Manufacturing
3483	Ammunition, Except for Small Arms	332993	332993	332993	Ammunition (except Small Arms) Manufacturing
3484	Small Arms	332994	332994	332994	Small Arms, Ordnance, and Ordnance Accessories Manufacturing
3489	Ordnance and Accessories, NEC	332995	332995	332994	Small Arms, Ordnance, and Ordnance Accessories Manufacturing
3491	Industrial Valves	332911	332911	332911	Industrial Valve Manufacturing
3492	Fluid Power Valves and Hose Fittings	332912	332912	332912	Fluid Power Valve and Hose Fitting Manufacturing
3493	Steel Springs, Except Wire	332611	332611	332613	Spring Manufacturing
3494	Valves and Pipe Fittings, NEC (except metal pipe hangers and supports)	332919	332919	332919	Other Metal Valve and Pipe Fitting Manufacturing
3494	Valves and Pipe Fittings, NEC (metal pipe hangers and supports)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3495	Wire Springs (except watch and clock springs)	332612	332612	332613	Spring Manufacturing
3495	Wire Springs (clock and watch springs)	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3496	Miscellaneous Fabricated Wire Products (potato mashers)	332214	332214	332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
3496	Miscellaneous Fabricated Wire Products (except shopping carts and potato mashers)	332618	332618	332618	Other Fabricated Wire Product Manufacturing
3496	Miscellaneous Fabricated Wire Products (shopping carts made from purchased wire)	333924	333924	333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing
3497	Metal Foil and Leaf (laminated aluminum foil rolls and sheets for flexible packaging uses)	322225	322225	322220	Paper Bag and Coated and Treated Paper Manufacturing
3497	Metal Foil and Leaf (foil and foil containers)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3498	Fabricated Pipe and Pipe Fittings	332996	332996	332996	Fabricated Pipe and Pipe Fitting Manufacturing
3499	Fabricated Metal Products, NEC (powder metallurgy)	332117	332117	332117	Powder Metallurgy Part Manufacturing
3499	Fabricated Metal Products, NEC (metal boxes)	332439	332439	332439	Other Metal Container Manufacturing
5088	Transportation Equipment and Supplies, Except Motor Vehicles (merchant wholesalers)	423860	423860	423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5088	Transportation Equipment and Supplies, Except Motor Vehicles (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5088	Transportation Equipment and Supplies, Except Motor Vehicles (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5091	Sporting and Recreational Goods and Supplies (merchant wholesalers except those selling sporting and recreational goods via retail method)	423910	423910	423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers
5091	Sporting and Recreational Goods and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5091	Sporting and Recreational Goods and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5091	Sporting and Recreational Goods and Supplies (sporting and recreational goods sold via retail method)	451110	451110	451110	Sporting Goods Stores
5092	Toys and Hobby Goods and Supplies (merchant wholesalers except those selling toys and hobby goods and supplies via retail method)	423920	423920	423920	Toy and Hobby Goods and Supplies Merchant Wholesalers
5092	Toys and Hobby Goods and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5092	Toys and Hobby Goods and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5092	Toys and Hobby Goods and Supplies (toys and hobby goods and supplies sold via retail method)	451120	451120	451120	Hobby, Toy, and Game Stores
5093	Scrap and Waste Materials (merchant wholesalers)	423930	423930	423930	Recyclable Material Merchant Wholesalers
5093	Scrap and Waste Materials (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5093	Scrap and Waste Materials (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5094	Jewelry, Watches, Precious Stones, and Precious Metals (merchant wholesalers except those selling jewelry and related goods via retail method)	423940	423940	423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers
5094	Jewelry, Watches, Precious Stones, and Precious Metals (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5094	Jewelry, Watches, Precious Stones, and Precious Metals (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5094	Jewelry, Watches, Precious Stones, and Precious Metals (jewelry and related goods sold via retail method)	448310	448310	448310	Jewelry Stores
5099	Durable Goods, NEC (merchant wholesalers except those selling miscellaneous durable goods via retail method)	423990	423990	423990	Other Miscellaneous Durable Goods Merchant Wholesalers
5099	Durable Goods, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5099	Durable Goods, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5099	Durable Goods, NEC (gas lighting fixtures, rough timbers, and other wood or construction materials sold via retail method)	444190	444190	444190	Other Building Material Dealers
5099	Durable Goods, NEC (ammunition and firearms sold via retail method)	451110	451110	451110	Sporting Goods Stores
5099	Durable Goods, NEC (coin-operated game machines sold via retail method)	451120	451120	451120	Hobby, Toy, and Game Stores
5099	Durable Goods, NEC (prerecorded audio and video tapes and discs sold via retail method)	451220	451220	443142	Electronics Stores
5111	Printing and Writing Paper (merchant wholesalers except those selling printing and writing paper via retail method)	424110	424110	424110	Printing and Writing Paper Merchant Wholesalers
5111	Printing and Writing Paper (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5111	Printing and Writing Paper (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5111	Printing and Writing Paper (printing and writing paper sold via retail method)	453210	453210	453210	Office Supplies and Stationery Stores
5112	Stationery and Office Supplies (merchant wholesalers except those selling stationery and office supplies via retail method)	424120	424120	424120	Stationery and Office Supplies Merchant Wholesalers
5112	Stationery and Office Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5112	Stationery and Office Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5112	Stationery and Office Supplies (stationery and office supplies sold via retail method)	453210	453210	453210	Office Supplies and Stationery Stores
5113	Industrial and Personal Service Paper (merchant wholesalers except those selling industrial and personal service paper via retail method)	424130	424130	424130	Industrial and Personal Service Paper Merchant Wholesalers
5113	Industrial and Personal Service Paper (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5113	Industrial and Personal Service Paper (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5113	Industrial and Personal Service Paper (industrial and personal service paper sold via retail method)	453998	453998	453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (merchant wholesalers except those selling drugs and sundries via retail method)	424210	424210	424210	Drugs and Druggists' Sundries Merchant Wholesalers
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (drugs and sundries sold via retail method)	446110	446110	446110	Pharmacies and Drug Stores
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (cosmetics sold via retail method)	446120	446120	446120	Cosmetics, Beauty Supplies, and Perfume Stores
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (vitamins sold via retail method)	446191	446191	446191	Food (Health) Supplement Stores
5131	Piece Goods, Notions, and Other Dry Goods (broadwoven converters)	313311	313311	313310	Textile and Fabric Finishing Mills
5131	Piece Goods, Notions, and Other Dry Goods (piece goods converters, except broadwoven)	313312	313312	313310	Textile and Fabric Finishing Mills
5131	Piece Goods, Notions, and Other Dry Goods (merchant wholesalers except broadwoven and piece goods converters and merchant wholesalers selling piece goods, notions and other dry goods via retail method)	424310	424310	424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers
3499	Fabricated Metal Products, NEC (safe and vault locks)	332510	332510	332510	Hardware Manufacturing
3499	Fabricated Metal Products, NEC (metal aerosol valves)	332919	332919	332919	Other Metal Valve and Pipe Fitting Manufacturing
3499	Fabricated Metal Products, NEC (other metal products)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3499	Fabricated Metal Products, NEC (metal automobile seat frames)	336360	336360	336360	Motor Vehicle Seating and Interior Trim Manufacturing
3499	Fabricated Metal Products, NEC (metal furniture frames)	337215	337215	337215	Showcase, Partition, Shelving, and Locker Manufacturing
3511	Steam, Gas, and Hydraulic Turbines, and Turbine Generator Set Units	333611	333611	333611	Turbine and Turbine Generator Set Units Manufacturing
3519	Internal Combustion Engines, NEC (except stationary engine radiators)	333618	333618	333618	Other Engine Equipment Manufacturing
3519	Internal Combustion Engines, NEC (stationary engine radiators)	336399	336399	336390	Other Motor Vehicle Parts Manufacturing
3523	Farm Machinery and Equipment (hand hair clippers for animals)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3523	Farm Machinery and Equipment (corrals, stalls, and holding gates)	332323	332323	332323	Ornamental and Architectural Metal Work Manufacturing
3523	Farm Machinery and Equipment (except corrals, stalls, holding gates, hand clippers for animals, and farm conveyors/elevators)	333111	333111	333111	Farm Machinery and Equipment Manufacturing
3523	Farm Machinery and Equipment (farm conveyors and elevators)	333922	333922	333922	Conveyor and Conveying Equipment Manufacturing
3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment (nonpowered lawnmowers)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment (except nonpowered lawnmowers)	333112	333112	333112	Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing
3531	Construction Machinery and Equipment (except railway track maintenance equipment; winches, aerial work platforms; and automotive wrecker hoists)	333120	333120	333120	Construction Machinery Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3531	Construction Machinery and Equipment (winches, aerial work platforms, automobile wrecker hoists, locomotive cranes, and ship cranes)	333923	333923	333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing
3531	Construction Machinery and Equipment (railway track maintenance equipment)	336510	336510	336510	Railroad Rolling Stock Manufacturing
3532	Mining Machinery and Equipment, Except Oil and Gas Field Machinery and Equipment	333131	333131	333131	Mining Machinery and Equipment Manufacturing
3533	Oil and Gas Field Machinery and Equipment	333132	333132	333132	Oil and Gas Field Machinery and Equipment Manufacturing
3534	Elevators and Moving Stairways	333921	333921	333921	Elevator and Moving Stairway Manufacturing
3535	Conveyors and Conveying Equipment	333922	333922	333922	Conveyor and Conveying Equipment Manufacturing
3536	Overhead Traveling Cranes, Hoists, and Monorail Systems	333923	333923	333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing
3537	Industrial Trucks, Tractors, Trailers, and Stackers (metal air cargo containers)	332439	332439	332439	Other Metal Container Manufacturing
3537	Industrial Trucks, Tractors, Trailers, and Stackers (metal pallets)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3537	Industrial Trucks, Tractors, Trailers, and Stackers (except metal pallets and metal air cargo containers)	333924	333924	333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing
3541	Machine Tools, Metal Cutting Types	333512	333512	333517	Machine Tool Manufacturing
3542	Machine Tools, Metal Forming Type	333513	333513	333517	Machine Tool Manufacturing
3543	Industrial Patterns	332997	332997	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3544	Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds (industrial molds)	333511	333511	333511	Industrial Mold Manufacturing
3544	Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds (except molds)	333514	333514	333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing
3545	Cutting Tools, Machine Tool Accessories, and Machinist Precision Measuring Devices (precision measuring devices)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3545	Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices (except precision measuring devices)	333515	333515	333515	Cutting Tool and Machine Tool Accessory Manufacturing
3546	Power-Driven Handtools	333991	333991	333991	Power-Driven Handtool Manufacturing
3547	Rolling Mill Machinery and Equipment	333516	333516	333519	Rolling Mill and Other Metalworking Machinery Manufacturing
3548	Electric and Gas Welding and Soldering Equipment (except transformers for arc-welding)	333992	333992	333992	Welding and Soldering Equipment Manufacturing
3548	Electric and Gas Welding and Soldering Equipment (transformers for arc-welders)	335311	335311	335311	Power, Distribution, and Specialty Transformer Manufacturing
3549	Metalworking Machinery, NEC	333518	333518	333519	Rolling Mill and Other Metalworking Machinery Manufacturing
3552	Textile Machinery	333292	333292	333249	Other Industrial Machinery Manufacturing
3553	Woodworking Machinery	333210	333210	333243	Sawmill, Woodworking, and Paper Machinery Manufacturing
3554	Paper Industries Machinery	333291	333291	333243	Sawmill, Woodworking, and Paper Machinery Manufacturing
3555	Printing Trades Machinery and Equipment	333293	333293	333244	Printing Machinery and Equipment Manufacturing
3556	Food Products Machinery	333294	333294	333241	Food Product Machinery Manufacturing
3559	Special Industry Machinery, NEC (nuclear control rod drive mechanisms)	332410	332410	332410	Power Boiler and Heat Exchanger Manufacturing
3559	Special Industry Machinery, NEC (cotton ginning machinery)	333111	333111	333111	Farm Machinery and Equipment Manufacturing
3559	Special Industry Machinery, NEC (rubber and plastics manufacturing machinery)	333220	333220	333249	Other Industrial Machinery Manufacturing
3559	Special Industry Machinery, NEC (semiconductor machinery manufacturing)	333295	333295	333242	Semiconductor Machinery Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3559	Special Industry Machinery, NEC (except rubber and plastics manufacturing machinery, semiconductor manufacturing machinery, and automotive maintenance equipment)	333298	333298	333249	Other Industrial Machinery Manufacturing
3559	Special Industry Machinery, NEC (automotive maintenance equipment)	333319	333319	333318	Other Commercial and Service Industry Machinery Manufacturing
3561	Pumps and Pumping Equipment	333911	333911	333911	Pump and Pumping Equipment Manufacturing
3562	Ball and Roller Bearings	332991	332991	332991	Ball and Roller Bearing Manufacturing
3563	Air and Gas Compressors	333912	333912	333912	Air and Gas Compressor Manufacturing
3564	Industrial and Commercial Fans and Blowers and Air Purification Equipment (air purification equipment)	333411	333411	333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing
3564	Industrial and Commercial Fans and Blowers and Air Purification Equipment (fans and blowers)	333412	333412	333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing
3565	Packaging Machinery	333993	333993	333993	Packaging Machinery Manufacturing
3566	Speed Changers, Industrial High-Speed Drives, and Gears	333612	333612	333612	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing
3567	Industrial Process Furnaces and Ovens	333994	333994	333994	Industrial Process Furnace and Oven Manufacturing
3568	Mechanical Power Transmission Equipment, NEC	333613	333613	333613	Mechanical Power Transmission Equipment Manufacturing
3569	General Industrial Machinery and Equipment, NEC (textile fire hose)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
3569	General Industrial Machinery and Equipment, NEC (electric swimming pool heaters)	333414	333414	333414	Heating Equipment (except Warm Air Furnaces) Manufacturing
3569	General Industrial Machinery and Equipment, NEC (except fire hoses and electric swimming pool heaters)	333999	333999	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
3571	Electronic Computers	334111	334111	334111	Electronic Computer Manufacturing
3572	Computer Storage Devices	334112	334112	334112	Computer Storage Device Manufacturing
3575	Computer Terminals	334113	334113	334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
3577	Computer Peripheral Equipment, NEC (except plotter controllers and magnetic tape head cleaners)	334119	334119	333316	Photographic and Photocopying Equipment Manufacturing
3577	Computer Peripheral Equipment, NEC (except plotter controllers and magnetic tape head cleaners)	334119	334119	334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
3577	Computer Peripheral Equipment, NEC (plotter controllers)	334418	334418	334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
3577	Computer Peripheral Equipment, NEC (magnetic tape head cleaners)	334613	334613	334613	Blank Magnetic and Optical Recording Media Manufacturing
3578	Calculating and Accounting Machinery, Except Electronic Computers (change making machines)	333311	333311	333318	Other Commercial and Service Industry Machinery Manufacturing
3578	Calculating and Accounting Machinery, Except Electronic Computers (except point of sales terminals, change making machines and funds transfer devices)	333313	333313	333318	Other Commercial and Service Industry Machinery Manufacturing
3578	Calculating and Accounting Machines, Except Electronic Computers (point of sale terminals and fund transfer devices)	334119	334119	333316	Photographic and Photocopying Equipment Manufacturing
3578	Calculating and Accounting Machines, Except Electronic Computers (point of sale terminals and fund transfer devices)	334119	334119	334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
3579	Office Machines, NEC (except timeclocks, time stamps, pencil sharpeners, stapling machines, etc.)	333313	333313	333318	Other Commercial and Service Industry Machinery Manufacturing
3579	Office Machines, NEC (time clocks and other time recording devices)	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3579	Office Machines, NEC (pencil sharpeners, staplers and other office equipment)	339942	339942	339940	Office Supplies (except Paper) Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
81	Automatic Vending Machines	333311	333311	333318	Other Commercial and Service Industry Machinery Manufacturing
3582	Commercial Laundry, Drycleaning, and Pressing Machines	333312	333312	333318	Other Commercial and Service Industry Machinery Manufacturing
3585	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment (except motor vehicle air-conditioning)	333415	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
3585	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment (motor vehicle air-conditioning)	336391	336391	336390	Other Motor Vehicle Parts Manufacturing
3586	Measuring and Dispensing Pumps	333913	333913	333913	Measuring and Dispensing Pump Manufacturing
3589	Service Industry Machinery, NEC	333319	333319	333318	Other Commercial and Service Industry Machinery Manufacturing
3592	Carburetors, Pistons, Piston Rings, and Valves	336311	336311	336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
3593	Fluid Power Cylinders and Actuators	333995	333995	333995	Fluid Power Cylinder and Actuator Manufacturing
3594	Fluid Power Pumps and Motors	333996	333996	333996	Fluid Power Pump and Motor Manufacturing
3596	Scales and Balances, Except Laboratory	333997	333997	333997	Scale and Balance Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC (machine shops)	332710	332710	332710	Machine Shops
3599	Industrial and Commercial Machinery and Equipment, NEC (grinding castings for the trade)	332813	332813	332813	Electroplating, Plating, Polishing, Anodizing, and Coloring
3599	Industrial and Commercial Machinery and Equipment, NEC (flexible metal hose)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC (carnival amusement park equipment)	333319	333319	333318	Other Commercial and Service Industry Machinery Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC (other industrial and commercial machinery and equipment)	333999	333999	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC (water leak detectors)	334519	334519	334519	Other Measuring and Controlling Device Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC (gasoline, oil, and intake filters for internal combustion engines, except for motor vehicles)	336399	336399	336390	Other Motor Vehicle Parts Manufacturing
3612	Power, Distribution, and Specialty Transformers	335311	335311	335311	Power, Distribution, and Specialty Transformer Manufacturing
3613	Switchgear and Switchboard Apparatus	335313	335313	335313	Switchgear and Switchboard Apparatus Manufacturing
3621	Motors and Generators	335312	335312	335312	Motor and Generator Manufacturing
3624	Carbon and Graphite Products	335991	335991	335991	Carbon and Graphite Product Manufacturing
3625	Relays and Industrial Controls	335314	335314	335314	Relay and Industrial Control Manufacturing
3629	Electrical Industrial Apparatus, NEC	335999	335999	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
3631	Household Cooking Equipment	335221	335221	335221	Household Cooking Appliance Manufacturing
3632	Household Refrigerators and Home and Farm Freezers	335222	335222	335222	Household Refrigerator and Home Freezer Manufacturing
3633	Household Laundry Equipment	335224	335224	335224	Household Laundry Equipment Manufacturing
3634	Electric Housewares and Fans (wall and baseboard heating units for permanent installation)	333414	333414	333414	Heating Equipment (except Warm Air Furnaces) Manufacturing
3634	Electric Housewares and Fans (except wall and baseboard heating units for permanent installation, electronic cigarette lighters, and wall mount restroom hand dryers)	335211	335211	335210	Small Electrical Appliance Manufacturing
3634	Electric Housewares and Fans (electronic cigarette lighters)	339999	339999	339999	All Other Miscellaneous Manufacturing
3635	Household Vacuum Cleaners	335212	335212	335210	Small Electrical Appliance Manufacturing
3639	Household Appliances, NEC (household sewing machines)	333298	333298	333249	Other Industrial Machinery Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3639	Household Appliances, NEC (floor waxing and floor polishing machines)	335212	335212	335210	Small Electrical Appliance Manufacturing
3639	Household Appliances, NEC (except floor waxing and floor polishing machines, and household sewing machines)	335228	335228	335228	Other Major Household Appliance Manufacturing
3641	Electric Lamp Bulbs and Tubes	335110	335110	335110	Electric Lamp Bulb and Part Manufacturing
3643	Current-Carrying Wiring Devices	335931	335931	335931	Current-Carrying Wiring Device Manufacturing
3644	Noncurrent-Carrying Wiring Devices (fish wire, electrical wiring tool)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3644	Noncurrent-Carrying Wiring Devices (except fishwire, electrical wiring tool)	335932	335932	335932	Noncurrent-Carrying Wiring Device Manufacturing
3645	Residential Electric Lighting Fixtures	335121	335121	335121	Residential Electric Lighting Fixture Manufacturing
3646	Commercial, Industrial, and Institutional Electric Lighting Fixtures	335122	335122	335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
3647	Vehicular Lighting Equipment	336321	336321	336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
3648	Lighting Equipment, NEC	335129	335129	335129	Other Lighting Equipment Manufacturing
3651	Household Audio and Video Equipment	334310	334310	334310	Audio and Video Equipment Manufacturing
3652	Phonograph Records and Prerecorded Audio Tapes and Disks (reproduction of all other media except video)	334612	334612	334614	Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing
3652	Phonograph Records and Prerecorded Audio Tapes and Disks (integrated record companies, except duplication only)	512220	512220	512220	Integrated Record Production/Distribution
3661	Telephone and Telegraph Apparatus (except consumer external modems)	334210	334210	334210	Telephone Apparatus Manufacturing
3661	Telephone and Telegraph Apparatus (consumer external modems)	334418	334418	334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
3663	Radio and Television Broadcasting and Communications Equipment	334220	334220	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
3663	Radio and Television Broadcasting and Communications Equipment	334220	334515	334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals
3669	Communications Equipment, NEC	334290	334290	334290	Other Communications Equipment Manufacturing
3671	Electron Tubes	334411	334411	334419	Other Electronic Component Manufacturing
3672	Printed Circuit Boards	334412	334412	334412	Bare Printed Circuit Board Manufacturing
3674	Semiconductors and Related Devices	334413	334413	334413	Semiconductor and Related Device Manufacturing
3675	Electronic Capacitors	334414	334414	334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
3676	Electronic Resistors	334415	334415	334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
3677	Electronic Coils, Transformers, and Other Inductors	334416	334416	334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
3678	Electronic Connectors	334417	334417	334417	Electronic Connector Manufacturing
3679	Electronic Components, NEC (antennas)	334220	334220	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
3679	Electronic Components, NEC (antennas)	334220	334515	334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals
3679	Electronic Components, NEC (radio headphones)	334310	334310	334310	Audio and Video Equipment Manufacturing
3679	Electronic Components, NEC (printed circuit/electronic assembly manufacturing)	334418	334418	334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
3679	Electronic Components, NEC (other electronic components)	334419	334419	334419	Other Electronic Component Manufacturing
3691	Storage Batteries	335911	335911	335911	Storage Battery Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3692	Primary Batteries, Dry and Wet	335912	335912	335912	Primary Battery Manufacturing
3694	Electrical Equipment for Internal Combustion Engines	336322	336322	336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
3695	Magnetic and Optical Recording Media	334613	334613	334613	Blank Magnetic and Optical Recording Media Manufacturing
3699	Electrical Machinery, Equipment, and Supplies, NEC (electronic teaching machines and flight simulators)	333319	333319	333318	Other Commercial and Service Industry Machinery Manufacturing
3699	Electrical Machinery, Equipment, and Supplies, NEC (outboard electric motors)	333618	333618	333618	Other Engine Equipment Manufacturing
3699	Electrical Machinery Equipment, and Supplies, NEC (laser welding and soldering equipment)	333992	333992	333992	Welding and Soldering Equipment Manufacturing
3699	Electrical Machinery, Equipment, and Supplies, NEC (Christmas tree lighting sets, electric insect lamps, electric fireplace logs, and trouble lights)	335129	335129	335129	Other Lighting Equipment Manufacturing
3699	Electrical Machinery, Equipment, and Supplies, NEC (other electrical industrial apparatus)	335999	335999	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
3711	Motor Vehicles and Passenger Car Bodies (automobiles)	336111	336111	336111	Automobile Manufacturing
3711	Motor Vehicles and Passenger Car Bodies (light trucks and utility vehicles)	336112	336112	336112	Light Truck and Utility Vehicle Manufacturing
3711	Motor Vehicles and Passenger Car Bodies (heavy duty trucks)	336120	336120	336120	Heavy Duty Truck Manufacturing
3711	Motor Vehicles and Passenger Car Bodies (kit car and other passenger car bodies)	336211	336211	336211	Motor Vehicle Body Manufacturing
3711	Motor Vehicles and Passenger Car Bodies (military armored vehicles)	336992	336992	336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing
3713	Truck and Bus Bodies	336211	336211	336211	Motor Vehicle Body Manufacturing
3714	Motor Vehicle Parts and Accessories (dump truck lifting mechanisms and fifth wheels)	336211	336211	336211	Motor Vehicle Body Manufacturing
3714	Motor Vehicle Parts and Accessories (gasoline engines and engine parts including rebuilt)	336312	336312	336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
3714	Motor Vehicle Parts and Accessories (wiring harness sets, other than ignition; block heaters and battery heaters; instrument board assemblies; permanent defrosters; windshield washer-wiper mechanisms; cruise control mechanisms; and other electrical equipm	336322	336322	336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
3714	Motor Vehicle Parts and Accessories (steering and suspension parts)	336330	336330	336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
3714	Motor Vehicle Parts and Accessories (brake and brake systems, including assemblies)	336340	336340	336340	Motor Vehicle Brake System Manufacturing
3714	Motor Vehicle Parts and Accessories (transmissions and power train parts, including rebuilding)	336350	336350	336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
3714	Motor Vehicle Parts and Accessories (except truck and bus bodies, trailers, engine and engine parts, motor vehicle electrical and electronic equipment, motor vehicle steering and suspension components, motor vehicle brake systems, and motor vehicle transm	336399	336399	336390	Other Motor Vehicle Parts Manufacturing
3715	Truck Trailers	336212	336212	336212	Truck Trailer Manufacturing
3716	Motor Homes	336213	336213	336213	Motor Home Manufacturing
3721	Aircraft (except research and development not producing prototypes)	336411	336411	336411	Aircraft Manufacturing
3721	Aircraft (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3721	Aircraft (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3724	Aircraft Engines and Engine Parts (except research and development not producing prototypes)	336412	336412	336412	Aircraft Engine and Engine Parts Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3724	Aircraft Engines and Engine Parts (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3724	Aircraft Engines and Engine Parts (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3728	Aircraft Parts and Auxiliary Equipment, NEC (fluid power aircraft subassemblies)	332912	332912	332912	Fluid Power Valve and Hose Fitting Manufacturing
3728	Aircraft Parts and Auxiliary Equipment, NEC (target drones)	336411	336411	336411	Aircraft Manufacturing
3728	Aircraft Parts and Auxiliary Equipment, NEC (except fluid power aircraft subassemblies, target drones, and research and development not producing prototypes)	336413	336413	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
3728	Aircraft Parts and Auxiliary Equipment, NEC (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3728	Aircraft Parts and Auxiliary Equipment, NEC (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3731	Ship Building and Repairing (except repairs in floating drydocks)	336611	336611	336611	Ship Building and Repairing
3731	Ship Building and Repairing (repair services provided by floating drydocks)	488390	488390	488390	Other Support Activities for Water Transportation
3732	Boat Building and Repairing (boat building)	336612	336612	336612	Boat Building
3732	Boat Building and Repairing (pleasure boat repair)	811490	811490	811490	Other Personal and Household Goods Repair and Maintenance
3743	Railroad Equipment (locomotive fuel lubricating or cooling medium pumps)	333911	333911	333911	Pump and Pumping Equipment Manufacturing
3743	Railroad Equipment (except locomotive fuel lubricating or cooling medium pumps)	336510	336510	336510	Railroad Rolling Stock Manufacturing
3751	Motorcycles, Bicycles, and Parts	336991	336991	336991	Motorcycle, Bicycle, and Parts Manufacturing
3761	Guided Missiles and Space Vehicles (except research and development not producing prototypes)	336414	336414	336414	Guided Missile and Space Vehicle Manufacturing
3761	Guided Missiles and Space Vehicles (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3761	Guided Missiles and Space Vehicles (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3764	Guided Missile and Space Vehicle Propulsion Units and Propulsion Unit Parts (except research and development not producing prototypes))	336415	336415	336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
3764	Guided Missile and Space Vehicle Propulsion Units and Propulsion Unit Parts (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3764	Guided Missile and Space Vehicle Propulsion Units and Propulsion Unit Parts (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3769	Guided Missile and Space Vehicle Parts and Auxiliary Equipment, NEC (except research and development not producing prototypes)	336419	336419	336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
3769	Guided Missile and Space Vehicle Parts and Auxiliary Equipment, NEC (research and development not producing prototypes)	541710	541712	541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
3769	Guided Missile and Space Vehicle Parts and Auxiliary Equipment, NEC (research and development not producing prototypes)	541710	541711	541711	Research and Development in Biotechnology
3792	Travel Trailers and Campers	336214	336214	336214	Travel Trailer and Camper Manufacturing
3795	Tanks and Tank Components	336992	336992	336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing
3799	Transportation Equipment, NEC (wheelbarrows)	333924	333924	333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3799	Transportation Equipment, NEC (automobile, boat, utility and light truck trailers)	336214	336214	336214	Travel Trailer and Camper Manufacturing
3799	Transportation Equipment, NEC (trailer hitches)	336399	336399	336390	Other Motor Vehicle Parts Manufacturing
3799	Transportation Equipment, NEC (except automobile, boat, utility light truck trailers, trailer hitches, and wheelbarrows)	336999	336999	336999	All Other Transportation Equipment Manufacturing
3812	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical Systems and Instruments	334511	334511	334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
3821	Laboratory Apparatus and Furniture	339111	337127	337127	Institutional Furniture Manufacturing
3821	Laboratory Apparatus and Furniture	339111	333999	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
3821	Laboratory Apparatus and Furniture	339111	333997	333997	Scale and Balance Manufacturing
3821	Laboratory Apparatus and Furniture	339111	339113	339113	Surgical Appliance and Supplies Manufacturing
3821	Laboratory Apparatus and Furniture	339111	333298	333249	Other Industrial Machinery Manufacturing
3821	Laboratory Apparatus and Furniture	339111	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
3821	Laboratory Apparatus and Furniture	339111	333994	333994	Industrial Process Furnace and Oven Manufacturing
3822	Automatic Controls for Regulating Residential and Commercial Environments and Appliances	334512	334512	334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
3823	Industrial Instruments for Measurement, Display, and Control of Process Variables; and Related Products	334513	334513	334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables
3824	Totalizing Fluid Meters and Counting Devices	334514	334514	334514	Totalizing Fluid Meter and Counting Device Manufacturing
3825	Instruments for Measuring and Testing of Electricity and Electrical Signals (automotive ammeters and voltmeters)	334514	334514	334514	Totalizing Fluid Meter and Counting Device Manufacturing
3825	Instruments for Measuring and Testing of Electricity and Electrical Signals (except automotive instruments)	334515	334515	334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals
3826	Laboratory Analytical Instruments	334516	334516	334516	Analytical Laboratory Instrument Manufacturing
3827	Optical Instruments and Lenses	333314	333314	333314	Optical Instrument and Lens Manufacturing
3829	Measuring and Controlling Devices, NEC (motor vehicle gauges)	334514	334514	334514	Totalizing Fluid Meter and Counting Device Manufacturing
3829	Measuring and Controlling Devices, NEC (electronic chronometers)	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3829	Measuring and Controlling Devices, NEC (except medical thermometers, electronic chronometers and motor vehicle gauges)	334519	334519	334519	Other Measuring and Controlling Device Manufacturing
3829	Measuring and Controlling Devices, NEC (medical thermometers)	339112	339112	339112	Surgical and Medical Instrument Manufacturing
3841	Surgical and Medical Instruments and Apparatus (tranquilizer guns)	332994	332994	332994	Small Arms, Ordnance, and Ordnance Accessories Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	337127	337127	Institutional Furniture Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	333999	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	333997	333997	Scale and Balance Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	339113	339113	Surgical Appliance and Supplies Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	333298	333249	Other Industrial Machinery Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	333415	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
3841	Surgical and Medical Instruments and Apparatus (operating room tables)	339111	333994	333994	Industrial Process Furnace and Oven Manufacturing
3841	Surgical and Medical Instruments and Apparatus (except tranquilizer guns and operating room tables)	339112	339112	339112	Surgical and Medical Instrument Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (incontinent pads and bed pads)	322291	322291	322291	Sanitary Paper Product Manufacturing
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (electronic hearing aids)	334510	334510	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (except electronic hearing aids, incontinent pads, anatomical models, and bed pads)	339113	339113	339113	Surgical Appliance and Supplies Manufacturing
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (anatomical models)	339999	339999	339999	All Other Miscellaneous Manufacturing
3843	Dental Equipment and Supplies	339114	339114	339114	Dental Equipment and Supplies Manufacturing
3844	X-Ray Apparatus and Tubes and Related Irradiation Apparatus	334517	334517	334517	Irradiation Apparatus Manufacturing
3845	Electromedical and Electrotherapeutic Apparatus (except CT and CAT scanners)	334510	334510	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
3845	Electromedical and Electrotherapeutic Apparatus (CT and CAT Scanners)	334517	334517	334517	Irradiation Apparatus Manufacturing
3851	Ophthalmic Goods (intraoccular lenses, i.e., surgical implants)	339113	339113	339113	Surgical Appliance and Supplies Manufacturing
3851	Ophthalmic Goods (except intraocular lenses)	339115	339115	339115	Ophthalmic Goods Manufacturing
3861	Photographic Equipment and Supplies (photographic films, paper, plates and chemicals)	325992	325992	325992	Photographic Film, Paper, Plate, and Chemical Manufacturing
3861	Photographic Equipment and Supplies (except photographic film, paper, plates, and chemicals)	333315	333315	333316	Photographic and Photocopying Equipment Manufacturing
3873	Watches, Clocks, Clockwork Operated Devices, and Parts	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3911	Jewelry, Precious Metal	339911	339911	339910	Jewelry and Silverware Manufacturing
3914	Silverware, Plated Ware, and Stainless Steel Ware (cutlery and flatware, nonprecious and precious plated)	332211	332211	332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
3914	Silverware, Plated Ware, and Stainless Steel Ware (precious metal plated hollowware)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3914	Silverware, Plated Ware, and Stainless Steel Ware (except nonprecious and precious plated metal cutlery, flatware, and hollowware)	339912	339912	339910	Jewelry and Silverware Manufacturing
3915	Jewelers Findings and Materials and Lapidary Work (watch jewels)	334518	334518	334519	Other Measuring and Controlling Device Manufacturing
3915	Jewelers' Findings and Materials, and Lapidary Work (except watch jewels)	339913	339913	339910	Jewelry and Silverware Manufacturing
3931	Musical Instruments	339992	339992	339992	Musical Instrument Manufacturing
3942	Dolls and Stuffed Toys	339931	339931	339930	Doll, Toy, and Game Manufacturing
3944	Games, Toys, and Children's Vehicles, Except Dolls and Bicycles (metal tricycles)	336991	336991	336991	Motorcycle, Bicycle, and Parts Manufacturing
3944	Games, Toys, and Children's Vehicles, Except Dolls and Bicycles (except metal tricycles)	339932	339932	339930	Doll, Toy, and Game Manufacturing
3949	Sporting and Athletic Goods, NEC	339920	339920	339920	Sporting and Athletic Goods Manufacturing
3951	Pens, Mechanical Pencils, and Parts	339941	339941	339940	Office Supplies (except Paper) Manufacturing
3952	Lead Pencils and Art Goods (drawing inks and india ink)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
3952	Lead Pencils, Crayons, and Artists' Materials (drafting tables and boards)	337127	337127	337127	Institutional Furniture Manufacturing
3952	Lead Pencils, Crayons, and Artists' Materials (except drawing ink, india ink, drafting tables and drafting boards)	339942	339942	339940	Office Supplies (except Paper) Manufacturing
3953	Marking Devices	339943	339943	339940	Office Supplies (except Paper) Manufacturing
3955	Carbon Paper and Inked Ribbons	339944	339944	339940	Office Supplies (except Paper) Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
3961	Costume Jewelry and Costume Novelties, Except Precious Metal (except cuff links)	339914	339914	339910	Jewelry and Silverware Manufacturing
3961	Costume Jewelry and Costume Novelties, Except Precious Metal (nonprecious cuff links)	339993	339993	339993	Fastener, Button, Needle, and Pin Manufacturing
3965	Fasteners, Buttons, Needles, and Pins	339993	339993	339993	Fastener, Button, Needle, and Pin Manufacturing
3991	Brooms and Brushes	339994	339994	339994	Broom, Brush, and Mop Manufacturing
3993	Signs and Advertising Specialties (screen printing purchased advertising specialties)	323113	323113	323113	Commercial Screen Printing
3993	Signs and Advertising Specialties (signs)	339950	339950	339950	Sign Manufacturing
3995	Burial Caskets	339995	339995	339995	Burial Casket Manufacturing
3996	Linoleum, Asphalted-Felt-Base, and Other Hard Surface Floor Coverings, NEC	326192	326192	326199	All Other Plastics Product Manufacturing
3999	Manufacturing Industries, NEC (fur dressing and finishing)	316110	316110	316110	Leather and Hide Tanning and Finishing
3999	Manufacturing Industries, NEC (burnt wood articles)	321999	321999	321999	All Other Miscellaneous Wood Product Manufacturing
3999	Manufacturing Industries, NEC (matches)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
3999	Manufacturing Industries, NEC (plastics products such as combs, hair curlers, etc.)	326199	326199	326199	All Other Plastics Product Manufacturing
3999	Manufacturing Industries, NEC (plastics products such as combs, hair curlers, etc.)	326199	336612	336612	Boat Building
3999	Manufacturing Industries, NEC (hand operated hair clippers for humans)	332211	332211	332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
3999	Manufacturing Industries, NEC (tape measures)	332212	332212	332216	Saw Blade and Handtool Manufacturing
3999	Manufacturing Industries, NEC (flocking metal products for the trade)	332812	332812	332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
3999	Manufacturing Industries, NEC (other miscellaneous metal products, such as combs, hair curlers, etc.)	332999	332999	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
3999	Manufacturing Industries, NEC (beauty and barber shop equipment, except chairs)	333319	333319	333318	Other Commercial and Service Industry Machinery Manufacturing
3999	Manufacturing Industries, NEC (lamp shades of paper or textile)	335121	335121	335121	Residential Electric Lighting Fixture Manufacturing
3999	Manufacturing Industries, NEC (electric hair clippers for humans)	335211	335211	335210	Small Electrical Appliance Manufacturing
3999	Manufacturing Industries, NEC (beauty and barber chairs)	337127	337127	337127	Institutional Furniture Manufacturing
3999	Manufacturing Industries, NEC (embroidery kits)	339932	339932	339930	Doll, Toy, and Game Manufacturing
3999	Manufacturing Industries, NEC (other miscellaneous products not specially provided for previously)	339999	339999	339999	All Other Miscellaneous Manufacturing
4011	Railroads, Line-Haul Operating	482111	482111	482111	Line-Haul Railroads
4013	Railroad Switching and Terminal Establishments (short line railroads)	482112	482112	482112	Short Line Railroads
4013	Railroad Switching and Terminal Establishments (except short line railroads)	488210	488210	488210	Support Activities for Rail Transportation
4412	Deep Sea Foreign Transportation of Freight	483111	483111	483111	Deep Sea Freight Transportation
4424	Deep Sea Domestic Transportation of Freight	483113	483113	483113	Coastal and Great Lakes Freight Transportation
4432	Freight Transportation on the Great Lakes - St. Lawrence Seaway	483113	483113	483113	Coastal and Great Lakes Freight Transportation
4449	Water Transportation of Freight, NEC	483211	483211	483211	Inland Water Freight Transportation
4481	Deep Sea Transportation of Passengers, Except by Ferry (deep sea activities)	483112	483112	483112	Deep Sea Passenger Transportation
4481	Deep Sea Transportation of Passengers, Except by Ferry (coastal activities)	483114	483114	483114	Coastal and Great Lakes Passenger Transportation
4482	Ferries (coastal and Great Lakes)	483114	483114	483114	Coastal and Great Lakes Passenger Transportation

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
4482	Ferries (inland)	483212	483212	483212	Inland Water Passenger Transportation
4489	Water Transportation of Passengers, NEC (water taxi)	483212	483212	483212	Inland Water Passenger Transportation
4489	Water Transportation of Passengers, NEC (airboats, excursion boats, and sightseeing boats)	487210	487210	487210	Scenic and Sightseeing Transportation, Water
4491	Marine Cargo Handling (dock and pier operations)	488310	488310	488310	Port and Harbor Operations
4491	Marine Cargo Handling (all but dock and pier operations)	488320	488320	488320	Marine Cargo Handling
4492	Towing and Tugboat Services	488330	488330	488330	Navigational Services to Shipping
4493	Marinas	713930	713930	713930	Marinas
4499	Water Transportation Services, NEC (lighterage)	483211	483211	483211	Inland Water Freight Transportation
4499	Water Transportation Services, NEC (lighthouse and canal operations)	488310	488310	488310	Port and Harbor Operations
4499	Water Transportation Services, NEC (piloting vessels in and out of harbors and marine salvage)	488330	488330	488330	Navigational Services to Shipping
4499	Water Transportation Services, NEC (all but lighthouse operations, piloting vessels in and out of harbors, boat and ship rental, marine salvage, lighterage, marine surveyor services, and canal operations)	488390	488390	488390	Other Support Activities for Water Transportation
4499	Water Transportation Services, NEC (boat and ship rental, commercial)	532411	532411	532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
4499	Water Transportation Services, NEC (marine surveying services)	541990	541990	541990	All Other Professional, Scientific, and Technical Services
4512	Air Transportation, Scheduled (passenger)	481111	481111	481111	Scheduled Passenger Air Transportation
4512	Air Transportation, Scheduled (freight)	481112	481112	481112	Scheduled Freight Air Transportation
4513	Air Courier Services	492110	492110	492110	Couriers and Express Delivery Services
4522	Air Transportation, Nonscheduled (passenger)	481211	481211	481211	Nonscheduled Chartered Passenger Air Transportation
4522	Air Transportation, Nonscheduled (freight)	481212	481212	481212	Nonscheduled Chartered Freight Air Transportation
4522	Air Transportation, Nonscheduled (using general purpose aircraft for a variety of passenger, freight, courier, and other uses)	481219	481219	481219	Other Nonscheduled Air Transportation
4522	Air Transportation, Nonscheduled (sightseeing planes)	487990	487990	487990	Scenic and Sightseeing Transportation, Other
4522	Air Transportation, Nonscheduled (air ambulance)	621910	621910	621910	Ambulance Services
4581	Airports, Flying Fields, and Airport Terminal Services (private air traffic control)	488111	488111	488111	Air Traffic Control
4581	Airports, Flying Fields, and Airport Terminal Services (air freight handling at airports, hangar operations, airport terminal services, aircraft storage, airports, and flying fields)	488119	488119	488119	Other Airport Operations
4581	Airports, Flying Fields, and Airport Terminal Services (aircraft servicing and repairing)	488190	488190	488190	Other Support Activities for Air Transportation
4581	Airports, Flying Fields, and Airport Terminal Services (airplane cleaning and janitorial services)	561720	561720	561720	Janitorial Services
4581	Airports, Flying Fields, and Airport Terminal Services (aircraft upholstery repair)	811420	811420	811420	Reupholstery and Furniture Repair
4612	Crude Petroleum Pipelines	486110	486110	486110	Pipeline Transportation of Crude Oil
4613	Refined Petroleum Pipelines	486910	486910	486910	Pipeline Transportation of Refined Petroleum Products
4619	Pipelines, NEC	486990	486990	486990	All Other Pipeline Transportation
4724	Travel Agencies	561510	561510	561510	Travel Agencies
4725	Tour Operators	561520	561520	561520	Tour Operators
4729	Arrangement of Passenger Transportation, NEC (arrangement of carpools and vanpools)	488999	488999	488999	All Other Support Activities for Transportation
4729	Arrangement of Passenger Transportation, NEC (except arrangement of vanpools and carpools)	561599	561599	561599	All Other Travel Arrangement and Reservation Services

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
4731	Arrangement of Transportation of Freight and Cargo (except freight rate auditors, private mail centers, and tariff consultants)	488510	488510	488510	Freight Transportation Arrangement
4731	Arrangement of Transportation of Freight and Cargo (freight rate-auditors and tariff consulting)	541614	541614	541614	Process, Physical Distribution, and Logistics Consulting Services
4741	Rental of Railroad Cars (grain leveling in railroad cars, grain trimming for railroad equipment, precooling of fruits and vegetables in connection with transportation, and railroad car cleaning, icing, ventilating, and heating)	488210	488210	488210	Support Activities for Rail Transportation
4741	Rental of Railroad Cars (rental of railroad cars)	532411	532411	532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
4783	Packing and Crating	488991	488991	488991	Packing and Crating
4785	Fixed Facilities and Inspection and Weighing Services for Motor Vehicle Transportation (marine cargo checkers)	488390	488390	488390	Other Support Activities for Water Transportation
4785	Fixed Facilities and Inspection and Weighing Services for Motor Vehicle Transportation (except marine cargo checkers)	488490	488490	488490	Other Support Activities for Road Transportation
4789	Transportation Services, NEC (horse-drawn cabs and carriages)	487110	487110	487110	Scenic and Sightseeing Transportation, Land
4789	Transportation Services, NEC (car loading and unloading; cleaning of railroad ballast; dining, parlor, sleeping, and other car operations; and railroad maintenance)	488210	488210	488210	Support Activities for Rail Transportation
4789	Transportation Services, NEC (pipeline terminals and stockyards for transportation)	488999	488999	488999	All Other Support Activities for Transportation
4789	Transportation Services, NEC (dining car operations on a fee or contract basis)	722310	722310	722310	Food Service Contractors
4812	Radiotelephone Communications (paging carriers)	517211	517210	517210	Wireless Telecommunications Carriers (except Satellite)
4812	Radiotelephone Communications (cellular carriers)	517212	517210	517210	Wireless Telecommunications Carriers (except Satellite)
4812	Radiotelephone Communications (paging and cellular resellers)	517310	517911	517911	Telecommunications Resellers
4813	Telephone Communications, Except Radiotelephone (except resellers)	517110	517110	517110	Wired Telecommunications Carriers
4813	Telephone Communications, Except Radiotelephone (resellers)	517310	517911	517911	Telecommunications Resellers
4822	Telegraph and Other Message Communications	517110	517110	517110	Wired Telecommunications Carriers
4832	Radio Broadcasting Stations (networks)	515111	515111	515111	Radio Networks
4832	Radio Broadcasting Stations (except networks)	515112	515112	515112	Radio Stations
4833	Television Broadcasting Stations	515120	515120	515120	Television Broadcasting
4841	Cable and Other Pay Television Services (cable networks)	515210	515210	515210	Cable and Other Subscription Programming
4841	Cable and Other Pay Television Services (except cable and other subscription programming)	517510	517110	517110	Wired Telecommunications Carriers
4899	Communications Services, NEC (radio broadcasting operated by cab companies)	485310	485310	485310	Taxi Service
4899	Communications Services, NEC (ship to shore broadcasting carriers)	517212	517210	517210	Wireless Telecommunications Carriers (except Satellite)
4899	Communications Services, NEC (satellite communications)	517410	517410	517410	Satellite Telecommunications
4899	Communications Services, NEC (except ship to shore broadcasting, satellite communications, pay telephone concession operators)	517910	517919	517919	All Other Telecommunications
4899	Communications Services, NEC (pay telephone concession operators)	812990	812990	812990	All Other Personal Services
4911	Electric Services (hydroelectric power generation)	221111	221111	221111	Hydroelectric Power Generation
4911	Electric Services (fossil fuel power generation)	221112	221112	221112	Fossil Fuel Electric Power Generation
4911	Electric Services (nuclear electric power generation)	221113	221113	221113	Nuclear Electric Power Generation
4911	Electric Services (other electric power generation)	221119	221119	221114	Solar Electric Power Generation
4911	Electric Services (other electric power generation)	221119	221119	221115	Wind Electric Power Generation
4911	Electric Services (other electric power generation)	221119	221119	221116	Geothermal Electric Power Generation

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
4911	Electric Services (other electric power generation)	221119	221119	221117	Biomass Electric Power Generation
4911	Electric Services (other electric power generation)	221119	221119	221118	Other Electric Power Generation
4911	Electric Services (electric power transmission and control)	221121	221121	221121	Electric Bulk Power Transmission and Control
4911	Electric Services (electric power distribution)	221122	221122	221122	Electric Power Distribution
4922	Natural Gas Transmission	486210	486210	486210	Pipeline Transportation of Natural Gas
4923	Natural Gas Transmission and Distribution (distribution)	221210	221210	221210	Natural Gas Distribution
4923	Natural Gas Transmission and Distribution (transmission)	486210	486210	486210	Pipeline Transportation of Natural Gas
4924	Natural Gas Distribution	221210	221210	221210	Natural Gas Distribution
4925	Mixed, Manufactured, or Liquefied Petroleum Gas Production and/or Distribution	221210	221210	221210	Natural Gas Distribution
4931	Electric and Other Services Combined (hydroelectric power generation)	221111	221111	221111	Hydroelectric Power Generation
4931	Electric and Other Services Combined (fossil fuel power generation)	221112	221112	221112	Fossil Fuel Electric Power Generation
4931	Electric and Other Services Combined (nuclear power generation)	221113	221113	221113	Nuclear Electric Power Generation
4931	Electric and Other Services Combined (other electric power generation)	221119	221119	221114	Solar Electric Power Generation
4931	Electric and Other Services Combined (other electric power generation)	221119	221119	221115	Wind Electric Power Generation
4931	Electric and Other Services Combined (other electric power generation)	221119	221119	221116	Geothermal Electric Power Generation
4931	Electric and Other Services Combined (other electric power generation)	221119	221119	221117	Biomass Electric Power Generation
4931	Electric and Other Services Combined (other electric power generation)	221119	221119	221118	Other Electric Power Generation
4931	Electric and Other Services Combined (electric power transmission and control)	221121	221121	221121	Electric Bulk Power Transmission and Control
4931	Electric and Other Services Combined (electric power distribution)	221122	221122	221122	Electric Power Distribution
4931	Electric and Other Services Combined (natural gas distribution)	221210	221210	221210	Natural Gas Distribution
4932	Gas and Other Services Combined (natural gas distribution)	221210	221210	221210	Natural Gas Distribution
4939	Combination Utilities, NEC (hydroelectric power generation)	221111	221111	221111	Hydroelectric Power Generation
4939	Combination Utilities, NEC (fossil fuel power generation)	221112	221112	221112	Fossil Fuel Electric Power Generation
4939	Combination Utilities, NEC (nuclear power generation)	221113	221113	221113	Nuclear Electric Power Generation
4939	Combination Utilities, NEC (other electric power generation)	221119	221119	221114	Solar Electric Power Generation
4939	Combination Utilities, NEC (other electric power generation)	221119	221119	221115	Wind Electric Power Generation
4939	Combination Utilities, NEC (other electric power generation)	221119	221119	221116	Geothermal Electric Power Generation
4939	Combination Utilities, NEC (other electric power generation)	221119	221119	221117	Biomass Electric Power Generation
4939	Combination Utilities, NEC (other electric power generation)	221119	221119	221118	Other Electric Power Generation
4939	Combination Utilities, NEC (electric power transmission and control)	221121	221121	221121	Electric Bulk Power Transmission and Control
4939	Combination Utilities, NEC (electric power distribution)	221122	221122	221122	Electric Power Distribution
4939	Combination Utilities, NEC (natural gas distribution)	221210	221210	221210	Natural Gas Distribution
4941	Water Supply	221310	221310	221310	Water Supply and Irrigation Systems
4952	Sewerage Systems	221320	221320	221320	Sewage Treatment Facilities
4953	Refuse Systems (hazardous waste treatment and disposal)	562211	562211	562211	Hazardous Waste Treatment and Disposal
4953	Refuse Systems (solid waste landfills)	562212	562212	562212	Solid Waste Landfill
4953	Refuse Systems (solid waste combustors and incinerators)	562213	562213	562213	Solid Waste Combustors and Incinerators
4953	Refuse Systems (other nonhazardous waste treatment and disposal)	562219	562219	562219	Other Nonhazardous Waste Treatment and Disposal
4953	Refuse Systems (materials recovery facilities)	562920	562920	562920	Materials Recovery Facilities
4959	Sanitary Services, NEC (vacuuming of runways)	488119	488119	488119	Other Airport Operations
4959	Sanitary Services, NEC (snow plowing and sweeping streets and highways)	488490	488490	488490	Other Support Activities for Road Transportation
4959	Sanitary Services, NEC (mosquito eradication)	561710	561710	561710	Exterminating and Pest Control Services
4959	Sanitary Services, NEC (cleaning parking lots and driveways)	561790	561790	561790	Other Services to Buildings and Dwellings
4959	Sanitary Services, NEC (remediation services)	562910	562910	562910	Remediation Services

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
4959	Sanitary Services, NEC (all but remediation services, malaria control, mosquito eradication, snow plowing, street sweeping, and airport runway vacuuming)	562998	562998	562998	All Other Miscellaneous Waste Management Services
4961	Steam and Air-Conditioning Supply	221330	221330	221330	Steam and Air-Conditioning Supply
4971	Irrigation Systems	221310	221310	221310	Water Supply and Irrigation Systems
5012	Automobiles and Other Motor Vehicles (merchant wholesalers)	423110	423110	423110	Automobile and Other Motor Vehicle Merchant Wholesalers
5012	Automobiles and Other Motor Vehicles (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5012	Automobiles and Other Motor Vehicles (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5013	Motor Vehicle Supplies and New Parts (merchant wholesalers except those selling via retail method)	423120	423120	423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers
5013	Motor Vehicle Supplies and New Parts (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5013	Motor Vehicle Supplies and New Parts (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5013	Motor Vehicle Supplies and New Parts (auto parts sold via retail method)	441310	441310	441310	Automotive Parts and Accessories Stores
5014	Tires and Tubes (merchant wholesalers except those selling via retail method)	423130	423130	423130	Tire and Tube Merchant Wholesalers
5014	Tires and Tubes (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5014	Tires and Tubes (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5014	Tires and Tubes (tires and tubes sold via retail method)	441320	441320	441320	Tire Dealers
5015	Motor Vehicle Parts, Used (merchant wholesalers except those selling via retail method)	423140	423140	423140	Motor Vehicle Parts (Used) Merchant Wholesalers
5015	Motor Vehicle Parts, Used (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5015	Motor Vehicle Parts, Used (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5015	Motor Vehicle Parts, Used (used auto parts sold via the retail method)	441310	441310	441310	Automotive Parts and Accessories Stores
5021	Furniture (merchant wholesalers except those selling via retail method)	423210	423210	423210	Furniture Merchant Wholesalers
5021	Furniture (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5021	Furniture (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5021	Furniture (furniture sold via the retail method)	442110	442110	442110	Furniture Stores
5023	Homefurnishings (merchant wholesalers except those selling via retail method)	423220	423220	423220	Home Furnishing Merchant Wholesalers
5023	Homefurnishings (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5023	Homefurnishings (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5023	Homefurnishings (floor coverings sold via retail method)	442210	442210	442210	Floor Covering Stores
5031	Lumber, Plywood, Millwork, and Wood Panels (merchant wholesalers)	423310	423310	423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers
5031	Lumber, Plywood, Millwork, and Wood Panels (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5031	Lumber, Plywood, Millwork, and Wood Panels (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5031	Lumber, Plywood, Millwork, and Wood Panels (sold via retail method)	444110	444110	444110	Home Centers
5032	Brick, Stone, and Related Construction Materials (merchant wholesalers except construction materials sold via retail method)	423320	423320	423320	Brick, Stone, and Related Construction Material Merchant Wholesalers
5032	Brick, Stone, and Related Construction Materials (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5032	Brick, Stone, and Related Construction Materials (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5032	Brick, Stone, and Related Construction Materials (brick, stone, and related construction materials sold via retail method)	444190	444190	444190	Other Building Material Dealers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5033	Roofing, Siding, and Insulation Materials (merchant wholesalers except those selling via retail method)	423330	423330	423330	Roofing, Siding, and Insulation Material Merchant Wholesalers
5033	Roofing, Siding, and Insulation Materials (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5033	Roofing, Siding, and Insulation Materials (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5033	Roofing, Siding, and Insulation Materials (roofing, siding, and insulation materials sold via retail method)	444190	444190	444190	Other Building Material Dealers
5039	Construction Materials, NEC (merchant wholesalers of prefabricated buildings and structural assemblies, wood)	423310	423310	423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers
5039	Construction Materials, NEC (merchant wholesalers of construction materials, nec except wood prefabricated buildings and structural assemblies and merchant wholesalers selling via retail method)	423390	423390	423390	Other Construction Material Merchant Wholesalers
5039	Construction Materials, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5039	Construction Materials, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5039	Construction Materials, NEC (glass sold via retail method)	444190	444190	444190	Other Building Material Dealers
5043	Photographic Equipment and Supplies (merchant wholesalers)	423410	423410	423410	Photographic Equipment and Supplies Merchant Wholesalers
5043	Photographic Equipment and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5043	Photographic Equipment and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5044	Office Equipment (merchant wholesalers except those selling office equipment via retail method)	423420	423420	423420	Office Equipment Merchant Wholesalers
5044	Office Equipment (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5044	Office Equipment (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5044	Office Equipment (office equipment sold via retail method)	453210	453210	453210	Office Supplies and Stationery Stores
5045	Computers and Computer Peripheral Equipment and Software (merchant wholesalers except those selling computers, equipment, and software via retail method)	423430	423430	423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers
5045	Computers and Computer Peripheral Equipment and Software (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5045	Computers and Computer Peripheral Equipment and Software (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5045	Computers and Computer Peripheral Equipment and Software (computers, peripherals, and software sold via retail method)	443120	443120	443142	Electronics Stores
5046	Commercial Equipment, NEC (merchant wholesalers)	423440	423440	423440	Other Commercial Equipment Merchant Wholesalers
5046	Commercial Equipment, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5046	Commercial Equipment, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5047	Medical, Dental and Hospital Equipment and Supplies (merchant wholesalers except those selling medical, dental, and hospital equipment and supplies via retail method)	423450	423450	423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
5047	Medical, Dental and Hospital Equipment and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5047	Medical, Dental and Hospital Equipment and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5047	Medical, Dental, and Hospital Equipment and Supplies (medical, dental, and hospital equipment and supplies sold via retail method)	446199	446199	446199	All Other Health and Personal Care Stores
5048	Ophthalmic Goods (merchant wholesalers)	423460	423460	423460	Ophthalmic Goods Merchant Wholesalers
5048	Ophthalmic Goods (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5048	Ophthalmic Goods (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5049	Professional Equipment and Supplies, NEC (merchant wholesalers except those selling religious and teacher's school supplies via retail method)	423490	423490	423490	Other Professional Equipment and Supplies Merchant Wholesalers
5049	Professional Equipment and Supplies, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5049	Professional Equipment and Supplies, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5049	Professional Equipment and Supplies, NEC (religious and teacher's school supplies sold via retail method)	453210	453210	453210	Office Supplies and Stationery Stores
5051	Metals Service Centers and Offices (merchant wholesalers)	423510	423510	423510	Metal Service Centers and Other Metal Merchant Wholesalers
5051	Metals Service Centers and Offices (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5051	Metals Service Centers and Offices (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5052	Coal and Other Minerals and Ores (merchant wholesalers)	423520	423520	423520	Coal and Other Mineral and Ore Merchant Wholesalers
5052	Coal and Other Minerals and Ores (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5052	Coal and Other Minerals and Ores (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5063	Electrical Apparatus and Equipment, Wiring Supplies and Construction Materials (merchant wholesalers except those selling electrical supplies, equipment, and apparatus via retail method)	423610	423610	423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers
5063	Electrical Apparatus and Equipment, Wiring Supplies and Construction Materials (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5063	Electrical Apparatus and Equipment, Wiring Supplies and Construction Materials (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5063	Electrical Apparatus and Equipment, Wiring Supplies, and Construction Materials (electrical supplies, equipment, and apparatus sold via retail method)	444190	444190	444190	Other Building Material Dealers
5064	Electrical Appliances, Television and Radio Sets (merchant wholesalers except those selling appliances, TVs, and radios via retail method)	423620	423620	423620	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers
5064	Electrical Appliances, Television and Radio Sets (merchant wholesalers except those selling appliances, TVs, and radios via retail method)	423620	423620	423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers
5064	Electrical Appliances, Television and Radio Sets (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5064	Electrical Appliances, Television and Radio Sets (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5064	Electrical Appliances, Television and Radio Sets (household appliances sold via retail method)	443111	443111	443141	Household Appliance Stores
5064	Electrical Appliances, Television and Radio Sets (television and radio sets sold via retail method)	443112	443112	443142	Electronics Stores
5064	Electrical Appliances, Television and Radio Sets (ceiling fans sold via retail method)	444190	444190	444190	Other Building Material Dealers
5065	Electronic Parts and Equipment, NEC (merchant wholesalers except those selling electronic parts and equipment via retail method)	423690	423690	423690	Other Electronic Parts and Equipment Merchant Wholesalers
5065	Electronic Parts and Equipment, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5065	Electronic Parts and Equipment, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5065	Electronic Parts and Equipment, NEC (amateur radios, CB's, intercommunications equipment, public address equipment, and similar communications equipment sold via retail method)	443112	443112	443142	Electronics Stores
5065	Electronic Parts and Equipment, NEC (modems and other computer components sold via retail method)	443120	443120	443142	Electronics Stores

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5072	Hardware (merchant wholesalers except those selling hardware via retail method)	423710	423710	423710	Hardware Merchant Wholesalers
5072	Hardware (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5072	Hardware (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5072	Hardware (hardware sold via retail method)	444130	444130	444130	Hardware Stores
5074	Plumbing and Heating Equipment and Supplies (Hydronics) (merchant wholesalers except those selling plumbing and hydronic heating equipment via retail method)	423720	423720	423620	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers
5074	Plumbing and Heating Equipment and Supplies (Hydronics) (merchant wholesalers except those selling plumbing and hydronic heating equipment via retail method)	423720	423720	423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers
5074	Plumbing and Heating Equipment and Supplies (Hydronics) (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5074	Plumbing and Heating Equipment and Supplies (Hydronics) (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5074	Plumbing and Heating Equipment and Supplies (Hydronics)(plumbing and hydronic heating equipment sold via retail method)	444190	444190	444190	Other Building Material Dealers
5075	Warm Air Heating and Air-Conditioning Equipment and Supplies (merchant wholesalers)	423730	423730	423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers
5075	Warm Air Heating and Air-Conditioning Equipment and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5075	Warm Air Heating and Air-Conditioning Equipment and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5078	Refrigeration Equipment and Supplies (merchant wholesalers)	423740	423740	423740	Refrigeration Equipment and Supplies Merchant Wholesalers
5078	Refrigeration Equipment and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5078	Refrigeration Equipment and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5082	Construction and Mining (Except Petroleum) Machinery and Equipment (merchant wholesalers)	423810	423810	423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers
5082	Construction and Mining (Except Petroleum) Machinery and Equipment (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5082	Construction and Mining (Except Petroleum) Machinery and Equipment (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5083	Farm and Garden Machinery and Equipment (merchant wholesalers except those selling lawn and garden equipment via retail method)	423820	423820	423820	Farm and Garden Machinery and Equipment Merchant Wholesalers
5083	Farm and Garden Machinery and Equipment (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5083	Farm and Garden Machinery and Equipment (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5083	Farm and Garden Machinery and Equipment (lawn and garden equipment sold via retail method)	444210	444210	444210	Outdoor Power Equipment Stores
5084	Industrial Machinery and Equipment (merchant wholesalers)	423830	423830	423830	Industrial Machinery and Equipment Merchant Wholesalers
5084	Industrial Machinery and Equipment (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5084	Industrial Machinery and Equipment (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5085	Industrial Supplies (merchant wholesalers of fluid power accessories)	423830	423830	423830	Industrial Machinery and Equipment Merchant Wholesalers
5085	Industrial Supplies (merchant wholesalers of industrial supplies except fluid power accessories and merchant wholesalers selling industrial supplies via retail method)	423840	423840	423840	Industrial Supplies Merchant Wholesalers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5085	Industrial Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5085	Industrial Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5085	Industrial Supplies (sold via retail method)	453998	453998	453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)
5087	Service Establishment Equipment and Supplies (merchant wholesalers except those selling beauty and barber shop equipment and supplies via retail method)	423850	423850	423850	Service Establishment Equipment and Supplies Merchant Wholesalers
5087	Service Establishment Equipment and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5087	Service Establishment Equipment and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5087	Service Establishment Equipment and Supplies (beauty and barber shop equipment and supplies sold via retail method)	446120	446120	446120	Cosmetics, Beauty Supplies, and Perfume Stores
5131	Piece Goods, Notions, and Other Dry Goods (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5131	Piece Goods, Notions, and Other Dry Goods (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5131	Piece Goods, Notions, and Other Dry Goods (piece goods, notions, and other dry goods sold via retail method)	451130	451130	451130	Sewing, Needlework, and Piece Goods Stores
5136	Men's and Boys' Clothing and Furnishings (merchant wholesalers of athletic uniforms)	423910	423910	423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers
5136	Men's and Boys' Clothing and Furnishings (merchant wholesalers except wholesaling athletic uniforms and uniforms and merchant wholesalers selling work clothing via retail method)	424320	424320	424320	Men's and Boys' Clothing and Furnishings Merchant Wholesalers
5136	Men's and Boys' Clothing and Furnishings (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5136	Men's and Boys' Clothing and Furnishings (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5136	Men's and Boys' Clothing and Furnishings (men's and boys' apparel, except uniforms and work clothing, sold via retail method)	448110	448110	448110	Men's Clothing Stores
5136	Men's and Boys' Clothing and Furnishings (uniforms and work clothing sold via retail method)	448190	448190	448190	Other Clothing Stores
5137	Women's, Children's and Infants' Clothing and Accessories (merchant wholesalers of athletic uniforms)	423910	423910	423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers
5137	Women's, Children's, and Infants' Clothing and Accessories (merchant wholesalers except wholesaling athletic uniforms and uniforms and merchant wholesalers selling work clothing via retail method)	424330	424330	424330	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers
5137	Women's, Children's, and Infants' Clothing and Accessories (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5137	Women's, Children's, and Infants' Clothing and Accessories (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5137	Women's, Children's, and Infants' Clothing and Accessories (selling a general line of womens clothing via retail method)	448120	448120	448120	Women's Clothing Stores
5137	Women's, Children's and Infants' Clothing and Accessories (selling a general line of children's and infants' clothing via retail method)	448130	448130	448130	Children's and Infants' Clothing Stores
5137	Women's, Children's, and Infants' Clothing and Accessories (uniforms and work clothing sold via retail method)	448190	448190	448190	Other Clothing Stores
5139	Footwear (merchant wholesalers except those selling footwear via retail method)	424340	424340	424340	Footwear Merchant Wholesalers
5139	Footwear (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5139	Footwear (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5139	Footwear (footwear sold via retail method)	448210	448210	448210	Shoe Stores

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5141	Groceries, General Line (merchant wholesalers except those selling general line groceries via retail method)	424410	424410	424410	General Line Grocery Merchant Wholesalers
5141	Groceries, General Line (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5141	Groceries, General Line (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5141	Groceries, General Line (general line groceries sold via retail method)	445110	445110	445110	Supermarkets and Other Grocery (except Convenience) Stores
5142	Packaged Frozen Foods (merchant wholesalers except those selling packaged frozen foods via retail method)	424420	424420	424420	Packaged Frozen Food Merchant Wholesalers
5142	Packaged Frozen Foods (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5142	Packaged Frozen Foods (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5142	Packaged Frozen Foods (frozen food sold via retail method)	454390	454390	454390	Other Direct Selling Establishments
5143	Dairy Products, Except Dried or Canned (merchant wholesalers except those selling dairy products via retail method)	424430	424430	424430	Dairy Product (except Dried or Canned) Merchant Wholesalers
5143	Dairy Products, Except Dried or Canned (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5143	Dairy Products, Except Dried or Canned (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5143	Dairy Products, Except Dried or Canned (dairy products sold via retail method)	445299	445299	445299	All Other Specialty Food Stores
5144	Poultry and Poultry Products (merchant wholesalers except those selling poultry and poultry products via retail method)	424440	424440	424440	Poultry and Poultry Product Merchant Wholesalers
5144	Poultry and Poultry Products (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5144	Poultry and Poultry Products (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5144	Poultry and Poultry Products (poultry and poultry products sold via retail method)	445210	445210	445210	Meat Markets
5145	Confectionery (merchant wholesalers except those selling confectionery via retail method)	424450	424450	424450	Confectionery Merchant Wholesalers
5145	Confectionery (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5145	Confectionery (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5145	Confectionery (confectionery sold via retail method)	445292	445292	445292	Confectionery and Nut Stores
5146	Fish and Seafoods (merchant wholesalers except those selling fish and seafoods via retail method)	424460	424460	424460	Fish and Seafood Merchant Wholesalers
5146	Fish and Seafoods (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5146	Fish and Seafoods (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5146	Fish and Seafoods (fish and seafoods sold via retail method)	445220	445220	445220	Fish and Seafood Markets
5147	Meats and Meat Products (boxed beef)	311612	311612	311612	Meat Processed from Carcasses
5147	Meats and Meat Products (merchant wholesalers except boxed beef manufacturers and merchant wholesalers selling meats and meat products via retail method)	424470	424470	424470	Meat and Meat Product Merchant Wholesalers
5147	Meats and Meat Products (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5147	Meats and Meat Products (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5147	Meat and Meat Products (meat and meat products sold via retail method)	445210	445210	445210	Meat Markets
5148	Fresh Fruits and Vegetables (merchant wholesalers except those selling fresh fruits and vegetables via retail method)	424480	424480	424480	Fresh Fruit and Vegetable Merchant Wholesalers
5148	Fresh Fruits and Vegetables (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5148	Fresh Fruits and Vegetables (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5148	Fresh Fruits and Vegetables (fresh fruits and vegetables sold via retail method)	445230	445230	445230	Fruit and Vegetable Markets
5149	Groceries and Related Products, NEC (processed bottled water manufacturing)	312112	312112	312112	Bottled Water Manufacturing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5149	Groceries and Related Products, NEC (merchant wholesalers except processed bottled water manufacturing and merchant wholesalers selling groceries and related products via retail method)	424490	424490	424490	Other Grocery and Related Products Merchant Wholesalers
5149	Groceries and Related Products, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5149	Groceries and Related Products, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5149	Groceries and Related Products, NEC (groceries and related products, except pet food, sold via retail method)	445299	445299	445299	All Other Specialty Food Stores
5149	Groceries and Related Products, NEC (pet food sold via retail method)	453910	453910	453910	Pet and Pet Supplies Stores
5153	Grain and Field Beans (merchant wholesalers except those selling grains and field beans via retail method)	424510	424510	424510	Grain and Field Bean Merchant Wholesalers
5153	Grain and Field Beans (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5153	Grain and Field Beans (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5153	Grain and Field Beans (grain and field beans sold via retail method)	444220	444220	444220	Nursery, Garden Center, and Farm Supply Stores
5154	Livestock (merchant wholesalers)	424520	424520	424520	Livestock Merchant Wholesalers
5154	Livestock (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5154	Livestock (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5159	Farm-Product Raw Materials, NEC (merchant wholesalers except those selling farm product raw materials, nec via retail method)	424590	424590	424590	Other Farm Product Raw Material Merchant Wholesalers
5159	Farm-Product Raw Materials, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5159	Farm-Product Raw Materials, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5159	Farm-Product Raw Materials, NEC (farm-product raw materials sold via retail method)	444220	444220	444220	Nursery, Garden Center, and Farm Supply Stores
5162	Plastics Materials and Basic Forms and Shapes (merchant wholesalers except those selling plastics via retail method)	424610	424610	424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers
5162	Plastics Materials and Basic Forms and Shapes (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5162	Plastics Materials and Basic Forms and Shapes (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5162	Plastics Materials and Basic Forms and Shapes (plastics materials, forms, and basic shapes sold via retail method)	453998	453998	453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)
5169	Chemicals and Allied Products, NEC (merchant wholesalers)	424690	424690	424690	Other Chemical and Allied Products Merchant Wholesalers
5169	Chemicals and Allied Products, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5169	Chemicals and Allied Products, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5171	Petroleum Bulk Stations and Terminals (except petroleum sold via retail method)	424710	424710	424710	Petroleum Bulk Stations and Terminals
5171	Petroleum Bulk Stations and Terminals (heating oil sold to final consumer)	454311	454311	454310	Fuel Dealers
5171	Petroleum Bulk Stations and Terminals (LP gas sold to final consumer)	454312	454312	454310	Fuel Dealers
5172	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals (merchant wholesalers)	424720	424720	424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)
5172	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5172	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5181	Beer and Ale (merchant wholesalers except those selling beer and ale via retail method)	424810	424810	424810	Beer and Ale Merchant Wholesalers
5181	Beer and Ale (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5181	Beer and Ale (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5181	Beer and Ale (beer and ale sold via retail method)	445310	445310	445310	Beer, Wine, and Liquor Stores
5182	Wine and Distilled Alcoholic Beverages (merchant wholesalers except those selling wine and distilled beverages via retail method)	424820	424820	424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers
5182	Wine and Distilled Alcoholic Beverages (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5182	Wine and Distilled Alcoholic Beverages (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5182	Wine and Distilled Alcoholic Beverages (wine and distilled alcoholic beverages sold via retail method)	445310	445310	445310	Beer, Wine, and Liquor Stores
5191	Farm Supplies (merchant wholesalers except those selling lawn and garden supplies via retail method)	424910	424910	424910	Farm Supplies Merchant Wholesalers
5191	Farm Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5191	Farm Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5191	Farm Supplies (lawn and garden supplies sold via retail method)	444220	444220	444220	Nursery, Garden Center, and Farm Supply Stores
5192	Books, Periodicals, and Newspapers (merchant wholesalers except those selling publications via retail method)	424920	424920	424920	Book, Periodical, and Newspaper Merchant Wholesalers
5192	Books, Periodicals, and Newspapers (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5192	Books, Periodicals, and Newspapers (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5192	Books, Periodicals, and Newspapers (sold via retail method)	451211	451211	451211	Book Stores
5193	Flowers, Nursery Stock, and Florists' Supplies (merchant wholesalers except those selling nursery stock via retail method)	424930	424930	424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers
5193	Flowers, Nursery Stock, and Florists' Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5193	Flowers, Nursery Stock, and Florists' Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5193	Flowers, Nursery Stock, and Florists' Supplies (sold via retail method)	444220	444220	444220	Nursery, Garden Center, and Farm Supply Stores
5194	Tobacco and Tobacco Products (merchant wholesalers except those selling tobacco and tobacco products via retail method)	424940	424940	424940	Tobacco and Tobacco Product Merchant Wholesalers
5194	Tobacco and Tobacco Products (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5194	Tobacco and Tobacco Products (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5194	Tobacco and Tobacco Products (sold via retail method)	453991	453991	453991	Tobacco Stores
5198	Paints, Varnishes, and Supplies (merchant wholesalers)	424950	424950	424950	Paint, Varnish, and Supplies Merchant Wholesalers
5198	Paints, Varnishes, and Supplies (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5198	Paints, Varnishes, and Supplies (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5199	Nondurable Goods, NEC (merchant wholesalers of yarns, except industrial)	424310	424310	424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers
5199	Nondurable Goods, NEC (merchant wholesalers of footwear cutstock)	424340	424340	424340	Footwear Merchant Wholesalers
5199	Nondurable Goods, NEC (merchant wholesalers of plastics foam)	424610	424610	424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers
5199	Nondurable Goods, NEC (merchant wholesalers except advertising specialties goods distributors, wholesaling footwear cutstock, wholesaling plastics foam, wholesaling industrial yarns and merchant wholesalers selling miscellaneous nondurable goods via the r	424990	424990	424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers
5199	Nondurable Goods, NEC (business to business electronic markets)	425110	425110	425110	Business to Business Electronic Markets
5199	Nondurable Goods, NEC (agents and brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers
5199	Nondurable Goods, NEC (curios, statuary, gifts, novelties, and souvenirs sold via retail method)	453220	453220	453220	Gift, Novelty, and Souvenir Stores

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
5199	Nondurable Goods, NEC (pets, pet supplies and tropical fish sold via retail method)	453910	453910	453910	Pet and Pet Supplies Stores
5199	Nondurable Goods, NEC (smokers' supplies sold via retail method)	453991	453991	453991	Tobacco Stores
5199	Nondurable Goods, NEC (advertising specialties goods distributors)	541890	541890	541890	Other Services Related to Advertising
7211	Power Laundries, Family and Commercial	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7212	Garment Pressing, and Agents for Laundries and Drycleaners	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7213	Linen Supply	812331	812331	812331	Linen Supply
7215	Coin-Operated Laundry and Drycleaning	812310	812310	812310	Coin-Operated Laundries and Drycleaners
7216	Drycleaning Plants, Except Rug Cleaning	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7217	Carpet and Upholstery Cleaning	561740	561740	561740	Carpet and Upholstery Cleaning Services
7218	Industrial Launderers	812332	812332	812332	Industrial Launderers
7219	Laundry and Garment Services, NEC (alteration and repair)	811490	811490	811490	Other Personal and Household Goods Repair and Maintenance
7219	Laundry and Garment Services, NEC (except diaper service and clothing alteration and repair)	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7219	Laundry and Garment Services, NEC (diaper service)	812331	812331	812331	Linen Supply
7221	Photographic Studios, Portrait	541921	541921	541921	Photography Studios, Portrait
7231	Beauty Shops (beauty and cosmetology schools)	611511	611511	611511	Cosmetology and Barber Schools
7231	Beauty Shops (except beauty and cosmetology schools and manicure and pedicure salons)	812112	812112	812112	Beauty Salons
7231	Beauty Shops (manicure and pedicure salons)	812113	812113	812113	Nail Salons
7241	Barber Shops (barber colleges)	611511	611511	611511	Cosmetology and Barber Schools
7241	Barber Shops (except barber colleges)	812111	812111	812111	Barber Shops
7251	Shoe Repair Shops and Shoeshine Parlors (shoe repair shops)	811430	811430	811430	Footwear and Leather Goods Repair
7251	Shoe Repair Shops and Shoeshine Parlors (hatcleaning and blocking shops)	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7251	Shoe Repair Shops and Shoeshine Parlors (shoeshine parlors)	812990	812990	812990	All Other Personal Services
7261	Funeral Services and Crematories (funeral homes and services)	812210	812210	812210	Funeral Homes and Funeral Services
7261	Funeral Services and Crematories (crematories)	812220	812220	812220	Cemeteries and Crematories
7291	Tax Return Preparation Services	541213	541213	541213	Tax Preparation Services
7299	Miscellaneous Personal Services, NEC (formal wear and costume rental)	532220	532220	532220	Formal Wear and Costume Rental
7299	Miscellaneous Personal Services, NEC (consumer credit and debt counseling services)	541990	541990	541990	All Other Professional, Scientific, and Technical Services
7299	Miscellaneous Personal Services, NEC (babysitting bureaus)	561310	561311	561311	Employment Placement Agencies
7299	Miscellaneous Personal Services, NEC (consumer bartering services)	561990	561990	561990	All Other Support Services
7299	Miscellaneous Personal Services, NEC (diet and weight reducing services)	812191	812191	812191	Diet and Weight Reducing Centers
7299	Miscellaneous Personal Services, NEC (personal care services)	812199	812199	812199	Other Personal Care Services
7299	Miscellaneous Personal Services, NEC (valet parking services)	812930	812930	812930	Parking Lots and Garages
7299	Miscellaneous Personal Services, NEC (except diet and weight reducing services, personal care services, valet parking services, babysitting bureaus, debt and credit counseling, consumer bartering services, and formal wear and costume rental)	812990	812990	812990	All Other Personal Services
7311	Advertising Agencies	541810	541810	541810	Advertising Agencies
7312	Outdoor Advertising Services	541850	541850	541850	Outdoor Advertising
7313	Radio, Television, and Publishers' Advertising Representatives	541840	541840	541840	Media Representatives
7319	Advertising, NEC (using general purpose aircraft for aerial advertising and a variety of other services)	481219	481219	481219	Other Nonscheduled Air Transportation
7319	Advertising, NEC (media buying services)	541830	541830	541830	Media Buying Agencies

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7319	Advertising, NEC (display advertising, aerial advertising using special purpose aircraft, such as blimps)	541850	541850	541850	Outdoor Advertising
7319	Advertising, NEC (advertising materials distributor)	541870	541870	541870	Advertising Material Distribution Services
7319	Advertising, NEC (except media buying, display advertising, except outdoor; and advertising material distributors)				
7322	Adjustment and Collection Services	561440	561440	561440	Collection Agencies
7323	Credit Reporting Services	561450	561450	561450	Credit Bureaus
7331	Direct Mail Advertising Services (mailing list compilers)	511140	511140	511140	Directory and Mailing List Publishers
7331	Direct Mail Advertising Services (except mailing list compilers)	541860	541860	541860	Direct Mail Advertising
7334	Photocopying and Duplicating Services (quick printing)	323114	323114	323111	Commercial Printing (except Screen and Books)
7334	Photocopying and Duplicating Services (except quick printing)	561439	561439	561439	Other Business Service Centers (including Copy Shops)
7335	Commercial Photography (using general purpose aircraft for aerial photography and a variety of other services)	481219	481219	481219	Other Nonscheduled Air Transportation
7335	Commercial Photography (except using general purpose aircraft for aerial photography and a variety of other services)	541922	541922	541922	Commercial Photography
7336	Commercial Art and Graphic Design	541430	541430	541430	Graphic Design Services
7338	Secretarial and Court Reporting (secretarial services)	561410	561410	561410	Document Preparation Services
7338	Secretarial and Court Reporting (court reporting services)	561492	561492	561492	Court Reporting and Stenotype Services
7342	Disinfecting and Pest Control Services (exterminating and pest control)	561710	561710	561710	Exterminating and Pest Control Services
7342	Disinfecting and Pest Control Services (except exterminating and pest control)	561720	561720	561720	Janitorial Services
7349	Building Cleaning and Maintenance Services, NEC (janitorial services)	561720	561720	561720	Janitorial Services
7349	Building Cleaning and Maintenance Services, NEC (services to buildings and dwellings, except janitorial services)	561790	561790	561790	Other Services to Buildings and Dwellings
7352	Medical Equipment Rental and Leasing (home health furniture and equipment rental and leasing)	532291	532291	532291	Home Health Equipment Rental
7352	Medical Equipment Rental and Leasing (medical machinery and equipment, except home health furniture and equipment, rental and leasing)	532490	532490	532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
7353	Heavy Construction Equipment Rental and Leasing (rental of construction equipment [except cranes] with operator)	238910	238910	238910	Site Preparation Contractors
7353	Heavy Construction Equipment Rental and Leasing (crane rental with operator)	238990	238990	238990	All Other Specialty Trade Contractors
7353	Heavy Construction Equipment Rental and Leasing (heavy construction equipment rental without operators)	532412	532412	532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing
7359	Equipment Rental and Leasing, NEC (appliances; TVs, VCRs, and other consumer electronic equipment rental)	532210	532210	532210	Consumer Electronics and Appliances Rental
7359	Equipment Rental and Leasing, NEC (except aircraft; industrial truck and equipment; TV, VCR, and other consumer electronic equipment; appliances; general rental centers; portable toilets; office machines; oil field and oil well drilling equipment; and hom	532299	532299	532299	All Other Consumer Goods Rental
7359	Equipment Rental and Leasing, NEC (general rental centers and home and garden equipment rental centers)	532310	532310	532310	General Rental Centers
7359	Equipment Rental and Leasing, NEC (aircraft rental and leasing)	532411	532411	532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
7359	Equipment Rental and Leasing, NEC (oil field and well drilling equipment)	532412	532412	532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing
7359	Equipment Rental and Leasing, NEC (office machine rental and leasing)	532420	532420	532420	Office Machinery and Equipment Rental and Leasing

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7359	Equipment Rental and Leasing, NEC (industrial truck and equipment rental and leasing)	532490	532490	532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
7359	Equipment Rental and Leasing, NEC (portable toilet rental)	562991	562991	562991	Septic Tank and Related Services
7361	Employment Agencies (executive placement services)	541612	561312	561312	Executive Search Services
7361	Employment Agencies (executive placement services)	541612	541612	541612	Human Resources Consulting Services
7361	Employment Agencies (except executive placement services)	561310	561311	561311	Employment Placement Agencies
7363	Help Supply Services (temporary help services)	561320	561320	561320	Temporary Help Services
7363	Help Supply Services (employee leasing services, professional employer organizations)	561330	561330	561330	Professional Employer Organizations
7371	Computer Programming Services	541511	541511	541511	Custom Computer Programming Services
7372	Prepackaged Software (mass reproduction of software)	334611	334611	334614	Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing
7372	Prepackaged Software (software publishing)	511210	511210	511210	Software Publishers
7373	Computer Integrated Systems Design	541512	541512	541512	Computer Systems Design Services
7374	Computer Processing and Data Preparation and Processing Services	518210	518210	518210	Data Processing, Hosting, and Related Services
7375	Information Retrieval Services (Internet service providers and Internet access providers)	518111	517110	517110	Wired Telecommunications Carriers
7375	Information Retrieval Services (Internet service providers and Internet access providers)	518111	517919	517919	All Other Telecommunications
7376	Computer Facilities Management Services	541513	541513	541513	Computer Facilities Management Services
7377	Computer Rental and Leasing	532420	532420	532420	Office Machinery and Equipment Rental and Leasing
7378	Computer Maintenance and Repair (sales locations providing supporting repair services as major source of receipts)	443120	443120	443142	Electronics Stores
7378	Computer Maintenance and Repair (except sales locations providing supporting repair services as major source of revenue)	811212	811212	811212	Computer and Office Machine Repair and Maintenance
7379	Computer Related Services, NEC (disk conversion services)	518210	518210	518210	Data Processing, Hosting, and Related Services
7379	Computer Related Services, NEC (computer systems consultants)	541512	541512	541512	Computer Systems Design Services
7379	Computer Related Services, NEC (except computer systems consultants and disk conversion services)	541519	541519	541519	Other Computer Related Services
7381	Detective, Guard, and Armored Car Services (detective services)	561611	561611	561611	Investigation Services
7381	Detective, Guard, and Armored Car Services (guard services)	561612	561612	561612	Security Guards and Patrol Services
7381	Detective, Guard, and Armored Car Services (armored car services)	561613	561613	561613	Armored Car Services
7382	Security Systems Services	561621	561621	561621	Security Systems Services (except Locksmiths)
7383	News Syndicates (except independent news correspondents)	519110	519110	519110	News Syndicates
7383	News Syndicates (independent news correspondents)	711510	711510	711510	Independent Artists, Writers, and Performers
7384	Photofinishing Laboratories (except one-hour)	812921	812921	812921	Photofinishing Laboratories (except One-Hour)
7384	Photofinishing Laboratories (one-hour)	812922	812922	812922	One-Hour Photofinishing
7389	Business Services, NEC (tobacco sheeting service)	312229	312229	312230	Tobacco Manufacturing
7389	Business Services, NEC (sponging, shrinking, etc. fabric for tailors and dress makers, batik work)	313311	313311	313310	Textile and Fabric Finishing Mills
7389	Business Services, NEC (embroidery of advertising on shirts and rug binding for the trade)	314999	314999	314999	All Other Miscellaneous Textile Product Mills
7389	Business Services, NEC (aerosol packaging, solvent recovery service-contract)	325998	325998	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
7389	Business Services, NEC (yacht brokers)	425120	425120	425120	Wholesale Trade Agents and Brokers

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7389	Business Services, NEC (driving services, e.g., auto or truck delivery and pilot car services)	488490	488490	488490	Other Support Activities for Road Transportation
7389	Business Services, NEC (post office contract stations)	491110	491110	491110	Postal Service
7389	Business Services, NEC (recording studios)	512240	512240	512240	Sound Recording Studios
7389	Business Services, NEC (audio taping services)	512290	512290	512290	Other Sound Recording Industries
7389	Business Services, NEC (microfilm services)	518210	518210	518210	Data Processing, Hosting, and Related Services
7389	Business Services, NEC (press clipping services and stock photo agencies)	519190	519190	519190	All Other Information Services
7389	Business Services, NEC (credit card and check validation service)	522320	522320	522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities
7389	Business Services, NEC (process services, patent agents, notaries public, paralegal services)	541199	541199	541199	All Other Legal Services
7389	Business Services, NEC (drafting service)	541340	541340	541340	Drafting Services
7389	Business Services, NEC (home and building inspection services)	541350	541350	541350	Building Inspection Services
7389	Business Services, NEC (map making services)	541370	541370	541370	Surveying and Mapping (except Geophysical) Services
7389	Business Services, NEC (interior design)	541410	541410	541410	Interior Design Services
7389	Business Services, NEC (industrial design)	541420	541420	541420	Industrial Design Services
7389	Business Services, NEC (fashion, furniture, and other design services)	541490	541490	541490	Other Specialized Design Services
7389	Business Services, NEC (distribution of telephone directories on a fee or contract basis)	541870	541870	541870	Advertising Material Distribution Services
7389	Business Services, NEC (sign painting and lettering, showcard painting, mannequin decorating service and other advertising related business services)	541890	541890	541890	Other Services Related to Advertising
7389	Business Services, NEC (translation and interpretation services)	541930	541930	541930	Translation and Interpretation Services
7389	Business Services (appraisers except insurance and real estate, outplacement services, and miscellaneous professional, scientific, and technical services)	541990	541990	541990	All Other Professional, Scientific, and Technical Services
7389	Business Services, NEC (radio transcription services)	561410	561410	561410	Document Preparation Services
7389	Business Services, NEC (telephone answering services)	561421	561421	561421	Telephone Answering Services
7389	Business Services, NEC (telemarketing bureaus and telephone soliciting)	561422	561422	561422	Telemarketing Bureaus and Other Contact Centers
7389	Business Services, NEC (private mail centers and mailbox rental)	561431	561431	561431	Private Mail Centers
7389	Business Services, NEC (other business service centers, except private mail centers and mailbox rental)	561439	561439	561439	Other Business Service Centers (including Copy Shops)
7389	Business Services, NEC (tax collection for federal, state, or local agencies)	561440	561440	561440	Collection Agencies
7389	Business Services, NEC (recovery and repossession services)	561491	561491	561491	Repossession Services
7389	Business Services, NEC (business support services except telephone answering, telemarketing bureaus, private mail centers and repossession services)	561499	561499	561499	All Other Business Support Services
7389	Business Services, NEC (convention and visitors bureaus, tourist information bureaus)	561591	561591	561591	Convention and Visitors Bureaus
7389	Business Services, NEC (reservation systems for hotels, restaurants, and time-share condominium exchanges)	561599	561599	561599	All Other Travel Arrangement and Reservation Services
7389	Business Services, NEC (swimming pool cleaning and maintenance)	561790	561790	561790	Other Services to Buildings and Dwellings
7389	Business Services, NEC (packaging and labeling services)	561910	561910	561910	Packaging and Labeling Services
7389	Business Services, NEC (convention and trade show services)	561920	561920	561920	Convention and Trade Show Organizers
7389	Business Services, NEC (other support services except packaging and labeling, convention and trade shows services, convention and visitor bureaus, tourist information bureaus)	561990	561990	561990	All Other Support Services

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals with facilities)	711310	711310	711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals without facilities)	711320	711320	711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities
7389	Business Services, NEC (agents and brokers for authors and artists and speaker bureaus)	711410	711410	711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures
7389	Business Services, NEC (apparel pressing service for the trade)	812320	812320	812320	Drycleaning and Laundry Services (except Coin-Operated)
7389	Miscellaneous Business Services (bail bonding)	812990	812990	812990	All Other Personal Services
7513	Truck Rental and Leasing Without Drivers	532120	532120	532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing
7514	Passenger Car Rental	532111	532111	532111	Passenger Car Rental
7515	Passenger Car Leasing	532112	532112	532112	Passenger Car Leasing
7519	Utility Trailers and Recreational Vehicle Rental	532120	532120	532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing
7521	Automobile Parking	812930	812930	812930	Parking Lots and Garages
7532	Top, Body, and Upholstery Repair Shops and Paint Shops	811121	811121	811121	Automotive Body, Paint, and Interior Repair and Maintenance
7533	Automotive Exhaust System Repair Shops	811112	811112	811112	Automotive Exhaust System Repair
7534	Tire Retreading and Repair Shops (rebuilding tires and retreaded tire manufacturing)	326212	326212	326212	Tire Retreading
7534	Tire Retreading and Repair Shops (tire repair)	811198	811198	811198	All Other Automotive Repair and Maintenance
7536	Automotive Glass Replacement Shops	811122	811122	811122	Automotive Glass Replacement Shops
7537	Automotive Transmission Repair Shops	811113	811113	811113	Automotive Transmission Repair
7538	General Automotive Repair Shops	811111	811111	811111	General Automotive Repair
7539	Automotive Repair Shops, NEC (except automotive air-conditioning repair)	811118	811118	811118	Other Automotive Mechanical and Electrical Repair and Maintenance
7539	Automotive Repair Shops, NEC (automotive air-conditioning repair)	811198	811198	811198	All Other Automotive Repair and Maintenance
7542	Carwashes	811192	811192	811192	Car Washes
7549	Automotive Services, Except Repair and Carwashes (towing)	488410	488410	488410	Motor Vehicle Towing
7549	Automotive Services, Except Repair and Carwashes (automotive window tinting)	811122	811122	811122	Automotive Glass Replacement Shops
7549	Automotive Services, Except Repair and Carwashes (lubricating service, automotive)	811191	811191	811191	Automotive Oil Change and Lubrication Shops
7549	Automotive Services, Except Repair and Carwashes (except automotive lubricating, automotive window tinting, and towing services)	811198	811198	811198	All Other Automotive Repair and Maintenance
7622	Radio and Television Repair Shops (household antenna installation and household-type satellite dish installation)	238290	238290	238290	Other Building Equipment Contractors
7622	Radio and Television Repair Shops (new retail sales combined with repair-repair services as major source of receipts)	443112	443112	443142	Electronics Stores
7622	Radio and Television Repair Shops (stereo, TV, VCR, and radio repair)	811211	811211	811211	Consumer Electronics Repair and Maintenance
7622	Radio and Television Repair Shops (telecommunication equipment repair)	811213	811213	811213	Communication Equipment Repair and Maintenance
7623	Refrigeration and Air-Conditioning Services and Repair Shops (new retail sales combined with repair-repair services as major source of receipts)	443111	443111	443141	Household Appliance Stores
7623	Refrigeration and Air-Conditioning Services and Repair Shops (commercial refrigerator equipment repair)	811310	811310	811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7623	Refrigeration and Air-Conditioning Service and Repair Shops (except commercial refrigeration equipment repair, and sales locations with repair as major source of receipts)	811412	811412	811412	Appliance Repair and Maintenance
7629	Electrical and Electronic Repair Shops, NEC (new retail sales combined with repair-repair services as major source of receipts)	443111	443111	443141	Household Appliance Stores
7629	Electrical and Electronic Repair Shops, NEC (other consumer electronic equipment, except business and office machines, telephones, and appliances-repair and maintenance)	811211	811211	811211	Consumer Electronics Repair and Maintenance
7629	Electrical and Electronic Repair Shops, NEC (business and office machine repair, electrical)	811212	811212	811212	Computer and Office Machine Repair and Maintenance
7629	Electrical and Electronic Repair Shops, NEC (telephone set repair)	811213	811213	811213	Communication Equipment Repair and Maintenance
7629	Electrical and Electronic Repair Shops, NEC (electrical measuring instrument repair and calibration, medical electrical equipment repair)	811219	811219	811219	Other Electronic and Precision Equipment Repair and Maintenance
7629	Electrical and Electronic Repair Shops, NEC (electrical appliance repair, washing machine repair, electric razor repair)	811412	811412	811412	Appliance Repair and Maintenance
7631	Watch, Clock, and Jewelry Repair (new retail sales combined with repair-repair services as major source of receipts)	448310	448310	448310	Jewelry Stores
7631	Watch, Clock, and Jewelry Repair (except new retail sales combined with repair services)	811490	811490	811490	Other Personal and Household Goods Repair and Maintenance
7641	Reupholstery and Furniture Repair	811420	811420	811420	Reupholstery and Furniture Repair
7692	Welding Repair	811310	811310	811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
7694	Armature Rewinding Shops (remanufacturing)	335312	335312	335312	Motor and Generator Manufacturing
7694	Armature Rewinding Shops (repair)	811310	811310	811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
7699	Repair Shops and Related Services, NEC (farriers)	115210	115210	115210	Support Activities for Animal Production
7699	Repair Shops and Related Services, NEC (boiler cleaning, chipping, and scaling)	238220	238220	238220	Plumbing, Heating, and Air-Conditioning Contractors
7699	Repair Shops and Related Services, NEC (custom picture framing shops)	442299	442299	442299	All Other Home Furnishings Stores
7699	Repair Shops and Related Services, NEC (new power tool retail sales combined with repair-repair services as major source of receipts)	444130	444130	444130	Hardware Stores
7699	Repair Shops and Related Services, NEC (new lawn and garden equipment retail sales combined with repair-repair services as major source of receipts)	444210	444210	444210	Outdoor Power Equipment Stores
7699	Repair Shops and Related Services, NEC (new bicycle retail sales combined with repair-repair services for bicycles as major source of receipts)	451110	451110	451110	Sporting Goods Stores
7699	Repair Shops and Related Services, NEC (ship scaling)	488390	488390	488390	Other Support Activities for Water Transportation
7699	Repair Shops and Related Services, NEC (locksmith shops)	561622	561622	561622	Locksmiths
7699	Repair Shops and Related Services, NEC (furnace, duct, gutter, and drain cleaning services)	561790	561790	561790	Other Services to Buildings and Dwellings
7699	Repair Shops and Related Services, NEC (cesspool and septic tank cleaning)	562991	562991	562991	Septic Tank and Related Services
7699	Repair Shops and Related Services, NEC (sewer cleaning and rodding)	562998	562998	562998	All Other Miscellaneous Waste Management Services
7699	Repair Shops and Related Services, NEC (taxidermists and antique repair and restoration, except antique car restoration)	711510	711510	711510	Independent Artists, Writers, and Performers
7699	Repair Shops and Related Services, NEC (camera repair)	811211	811211	811211	Consumer Electronics Repair and Maintenance

SIC	SIC Title (and note)	2002 NAICS	2007 NAICS	2012 NAICS	2012 NAICS Title
7699	Repair Shops and Related Services, NEC (typewriter repair, refilling or recycling ink jet cartridges)	811212	811212	811212	Computer and Office Machine Repair and Maintenance
7699	Repair Shops and Related Services, NEC (dental instrument repair, laboratory instrument repair, medical equipment and other electronic and precision equipment repair, except typewriters)	811219	811219	811219	Other Electronic and Precision Equipment Repair and Maintenance
7699	Repair Shops and Related Services, NEC (other non-automotive transportation equipment and industrial machines and equipment, and sharpening commercial blades)	811310	811310	811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
7699	Repair Shops and Related Services, NEC (lawnmower repair shops, sharpening and repairing knives, saws and tools)	811411	811411	811411	Home and Garden Equipment Repair and Maintenance
7699	Repair Shops and Related Services, NEC (gas appliance repair service, sewing machine repair, stove repair shops, and other non-electrical appliance)	811412	811412	811412	Appliance Repair and Maintenance
7699	Repair Shops and Related Services, NEC (leather goods repair shops, luggage repair shops, pocketbook repair shops)	811430	811430	811430	Footwear and Leather Goods Repair
7699	Repair Shops and Related Services, NEC (except industrial, electronic, home and garden, appliance, and leather goods)	811490	811490	811490	Other Personal and Household Goods Repair and Maintenance

Appendix B: Guidance for TURA Reporting and Planning for Certain Categories and Chemicals

Rules for Reporting Water Dissociable Nitrate Compounds Category

The 2000 EPA TRI guidance document, "List of Toxic Chemicals within the Water Dissociable Nitrate Compounds Category and Guidance for Reporting" (EPA 745-R-00-006), provides a detailed description of how to report this chemical category on Form R. Additional information on reporting nitrate compounds for the neutralization of nitric acid can be found in the fact sheet "Reporting Water Dissociable Nitrates" produced by the Office of Technical Assistance (http://www.mass.gov/eea/docs/eea/ota/software/nitrates-fact-sheet-update.pdf). The following general overview is from the EPA guidance document:

> "Chemicals within the nitrate compounds category are only reportable when in aqueous solution. All water dissociable nitrate compounds are included in the nitrate compounds category, including ammonium nitrate. Specifically listed section 313 chemicals *are not* included in threshold determinations for chemical categories such as the water dissociable nitrate compounds category. Specifically listed toxic chemicals are subject to their own individual threshold determinations. As of December 1, 1994, ammonium nitrate (solution) is not an individually listed chemical on the EPCRA section 313 list. However, ammonium nitrate is still subject to reporting under the nitrate compounds category. In addition, the aqueous ammonia from the dissociation of ammonium nitrate when in aqueous solution is subject to reporting under the ammonia listing."

Determining Threshold Quantities for Nitrate Compounds

The total nitrate compound, including **both** the nitrate ion portion and the counterion, is included in the nitrate compounds category. When determining threshold amounts, the **total** weight of the nitrate compound is to be included in all calculations.

If a facility treats wastewater on-site biologically, using the activated sludge process, for example, the facility may be generating nitrate compounds as a result of this biological process. The nitrate ion generated from this process will be associated with various counterions (e.g. sodium ion, potassium ion). In the absence of information on the identity of the counterion, a facility should assume for the purposes of TURA threshold determinations that the counterion is sodium ion.

Determining Byproduct Quantities for Nitrate Compounds

Only the nitrate ion (NO_3) portion of nitrate compounds is to be included when determining the amount of the chemicals within the nitrate compounds category that are generated as byproduct. Since some of the nitrate compounds generated by a process may also be destroyed in that process (e.g., biological wastewater treatment), the quantity of byproduct is equivalent to the sum of Part II, Sections 8.1 through 8.8 **minus** Section 8.6 (quantity treated onsite) of the EPA Form R.

Example

- Threshold determination -

  In a calendar year, a facility coincidentally manufactures 20,000 pounds of sodium nitrate and 10,000 pounds of calcium nitrate, both in aqueous solutions, and releases these solutions to wastewater streams. The total quantity of nitrate compounds manufactured by the facility is the sum of the two chemicals, or 30,000 pounds, which exceeds the manufacturing threshold quantity of 25,000 pounds. The facility, therefore, is required to report 30,000 pounds for the nitrate compounds category.

- Byproduct determination -

  By weight, the nitrate ion portion is 72.96 percent of sodium nitrate and is 75.57 percent of calcium nitrate. Of the 20,000 pounds of the sodium nitrate in solution, 72.96 percent or 14,**592** pounds is nitrate ion, and similarly, of the 10,000 pounds of the calcium nitrate in solution, 75.57 percent or 7,557 pounds is nitrate ion. The total nitrate ion in aqueous solution generated as byproduct by the facility is the sum of the nitrate ion in the two solutions, or 22,149 pounds.

Guidance on Reporting Hexavalent Chromium (Cr(VI)) Compounds Use in Combustion and Welding Operations (Higher Hazard Substance, Effective Reporting Year 2012)

There are changes to the requirements for submitting Chromium compounds under Massachusetts Department of Environmental Protection (MassDEP) Toxics Use Reduction (TURA) Form S reports due on July 1, 2013 covering reporting year 2012. This document explains the new reporting requirements and mechanics and provides guidance on determining if combustion activities at your facility are likely to trip the reporting thresholds.

1. Higher Hazard Designation for Hexavalent Chromium (Cr(VI))

As of reporting year 2012: hexavalent chromium (Cr(VI)) compounds have been split off from all Chromium compounds, and designated as a higher hazard substance. This has the following implications.

REPORTING THRESHOLD REDUCED TO 1000 Cr(VI) Compounds:

Designation as a higher hazard substance lowers the reporting threshold from the current threshold of 25,000 pounds if the substance is manufactured or processed or 10,000 pounds if the substance is otherwise used to 1000 pounds. A Form S report is required for each higher hazard substance manufactured OR processed OR otherwise used at 1000 or more pounds in a calendar year. Note that these three types of use are NOT additive for the purposes of determining whether the threshold has been exceeded. For example, a facility that manufactured 700 pounds and otherwise used 350 pounds of formaldehyde would not be required to submit a Form S report on the substance, since neither type of use exceeded 1000 pounds.

Non-Cr(VI) chromium compounds are still reportable as the chromium compounds category under the original TURA reporting thresholds (25,000 pounds if manufactured , 25,000 pounds if processed, or 10,000 pounds if otherwise used).

NEW DEP CHEMICAL CATEGORY NUMBERS ASSIGNED FOR CHROMIUM COMPOUNDS

Every chemical category has to have a unique identifier in order to collect the chemical data. As a result new category numbers were created for the two new Chromium categories

1. Use DEP Category # 1216 for Cr (VI) compounds
- Use DEP Category # 1217 for Non Cr(VI) Chromium Compounds

STATE ONLY FORM Rs ARE REQUIRED FOR Cr(VI), and CHROMIUM COMPOUNDS EXCLUDING CR(VI)

Designation as a higher hazard substance changes the mechanics of reporting Form R information to the MassDEP Toxics Use Reduction Program and to Environmental Protection Agency (EPA) Toxics Release Inventory (TRI). The TURA system will automatically generate State Only Form Rs for all substances for which the TURA reporting threshold is lower than the EPA Toxics Release Inventory threshold, and for all substances which have different "qualifiers" under the TURA and TRI systems. Therefore facilities will need to:

- Complete the "State Only Form R" for, Cr(VI) Compounds and Chromium Compounds excluding Cr(VI).
- Submit a separate Form R to the EPA TRI program for Chromium compounds. Note that the Chromium Compounds Form R submitted to EPA will cover ALL Chromium Compounds.

2. What are some examples of hexavalent chromium compounds?

Hexavalent chromium compounds are any chromium compounds in the +6 valence state.
This includes, but is not limited to, the following compounds:

7789-98-9	Ammonium Chromate
7789-09-5	Ammonium Dichromate
10294-40-3	Barium Chromate
1189-85-1	tert-Butyl Chomate
13765-19-0	Calcium Chromate
14986-48-2	Chromium (VI) chloride
1333-82-0	Chromium (VI) Trioxide
18540-29-9	Hexavalent Chromium
7758-97-6	Lead Chromate
18454-12-1	Lead Chromate Oxide
1344-38-3	Basic Lead Chromate Orange
7789-00-6	Potassium Chromate
7778-50-9	Potassium Dichromate
7784-01-2	Silver Chromate
7775-11-3	Sodium Chromate
10588-01-9	Sodium Dichromate
7789-12-0	Sodium Dichromate Dehydrate
7789-06-2	Strontium Chromate
13530-65-9	Zinc Chromate
14018-95-2	Zinc Dichromate[1]
7738-94-5	Chromic Acid

3. How are Chromium Compounds Used?

Industrial uses of hexavalent chromium compounds include chromate pigments in dyes, paints, inks, and plastics; chromates added as anticorrosive agents to paints, primers, and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating.[2]

Cr(VI) Compounds can also be coincidentally manufactured during the consumption of fuel or when performing hot work" such as welding on stainless steel or melting chromium metal. In these situations the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state.[3] Filers using chromium compounds of any kind should consider whether they are being used in an oxidating environment and thus could be generating hexavalent chromium compounds.

Chromium may also be coincidentally manufactured during the combustion of fuel.
Note that the information that follows is provided for general guidance – facilities are required to use the best readily available data applicable to their operations for threshold determinations.

Cr(VI) USE IN COMBUSTION PROCESSES

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[1] http://www.osha.gov/dts/chemicalsampling/data/CH_228697.html

[2] http://www.osha.gov/SLTC/hexavalentchromium/index.html

[3] http://www.osha.gov/SLTC/hexavalentchromium/index.html

Manufacturing: Facilities will likely coincidentally manufacture Cr(VI) Compounds through combustion and flue gas desulfurization in sufficient quantities to trip the 1,000 pound reporting threshold. In general, the quantities of Cr(VI) compounds and formaldehyde manufactured, processed, or otherwise used at a facility will be dependent on a number of factors, including the type of fuel combusted (coal, oil, gas), the type of combustor, and combustion conditions (e.g., temperature, air/fuel ratio). Information that can be used to estimate the coincidental manufacture of Cr(VI) Compounds during combustion can be found in the references cited at the end of this document.

Processing:"Processing" means preparing a TURA reportable chemical or a mixture or other trade name product containing a TURA reportable chemical for distribution in commerce. Chromium compounds in fly ash and ash from coal- and oil-fired facilities are likely to include Cr(VI) compounds. Any fly ash that is shipped off site for use or recycling by another facility is being "processed" and unless the *de minimis* exemption applies, the Cr(VI) compounds in the ash must be counted toward the 1000 pound "processing" threshold. (Note however that any ash recovered for use onsite the material has NOT been prepared for distribution in commerce and thus is not counted toward the processing threshold.)

The *de minimis* exemption applies to toxic substances that are contained in materials distributed in commerce offsite for direct use or reuse. A material is considered to be transferred offsite for direct reuse if the materials will be directly used in an operation or application without any recovery or other extraction of contaminants. Toxic substances that are present in a material below the *de minimis* concentration are not counted toward the 1000 pound "processing" threshold.

For example; ash sent off-site for concrete manufacturing is a 'direct reuse". The *de minimis* concentration for Cr(VI) compounds and formaldehyde is 0.1 percent. Therefore if the ash being sent off for direct reuse in concrete manufacture is less than 0.1 % Cr(VI) Compounds, the Cr(VI) Compounds in the ash does not need to be counted toward the 1000 pound "processing" threshold. If the concentration is >0.1%, then the entire amount of Cr(VI) Compounds in the ash must be counted toward the 1000 pound "processing" threshold.

Because transfers offsite for recycling must undergo a subsequent recovery step, the material to be recycled is considered a waste and is not eligible for the *de minimis* exemption. All Cr(VI) contained in such materials must be counted toward the processing threshold, regardless of its concentration.

Otherwise Use: A substance is "otherwise used" in a production process if it is neither manufactured nor incorporated into the final product. Therefore any contaminants contained in fuel are considered "otherwise used" in the combustion process. The *de minimis* concentration applies to materials that are otherwise used. Materials below the *de minimis* concentrations (0.1 % for Cr (VI) Compounds and for formaldehyde) do not need to be counted toward the 1000 pound "otherwise use" threshold. However the entire quantity of substances that are present in concentrations above the *de minimis* level must be counted toward the 1000 pound "otherwise use" threshold

- Cr(VI) Compounds in fuel : Unless a facility has information indicating otherwise, they may assume that Cr(VI) compounds in coal and distillate oil are below *de minimis* levels.

- **Cr(VI) compounds in ash or other wastes that are received from off-site and disposed, stabilized (without subsequent distribution in commerce), or treated for destruction on-site**. These materials are "wastes" and as such are not subject to the *de minimis* exemption. Facilities engaged in these operations must count the entire amount of Cr(VI) Compounds in the ash toward the 1000 pound "otherwise use" threshold.

REFERENCES FOR QUANITIFYING Cr(VI) CONCENTRATIONS IN FUEL, EMISSIONS, AND ASH.

It is the responsibility of each facility to determine the best readily available data applicable to their operations. The methods and sources of data for quantifying Cr(VI) compounds use include, but are not limited to, the following –

1. Fuel-specific data for the fuels combusted (e.g., obtained from supplier).

2. Facility-specific monitoring data and/or emission factors.

3. Facility-specific waste (e.g., ash) sampling data – the literature contains a number of studies and other information sources that show that the fly ash from coal- and oil-fired facilities is likely to contain Cr(VI) compounds. Among these references are –
   a. Cr(VI) speciation data for ash from coal- and oil-fired electric generation facilities discussed in EPA's *National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units – Final Rule*, pp. 70 – 76, 12/16/11. (http://www.epa.gov/mats/pdfs/20111216MATSfinal.pdf).
   b. *Nickel and Chromium Speciation of Residual Oil Combustion Ash*, K. C. Galbreath, C. J. Zygarlicke, D. L. Toman, F. E. Huggins, G. P. Huffman, **Combustion Science and Technology**, Vol. 134, Iss. 1-6, 1998.
   c. *Chromium Speciation in Coal and Biomass Co-Combustion Products*, Arthur F. Stam, Ruud Meij, Henk te Winkel, Ronald J. van Eijk, Frank E. Huggins, Gerrit Brem, **Environ. Sci. Technol.**, **2011**, *45* (6), 2450-2456.

4. For EPRI members – the PISCES database (provides emission factors and models to calculate air emissions), and Toxics Release Inventory for Power Plants (TRIPP) software.

5. EPA's *EPCRA Section 313 Industry Guidance – Electricity Generating Facilities*.

6. EPA emission factors from EPA's *Compilation of Air Pollutant Emission Factors (AP-42), 5th ed. - Chapter 1, External Combustion Sources*. These factors are based on a limited number of samples and may not reflect more accurate information available to the facility for the particular type of fuel combusted and pollution control devices used.

Cr(VI) USE IN WELDING:

Emission Factors

The following emission factors were reported in the literature. For more information on electrode types, rod diameters, test conditions and analytical methods, please see the appropriate reference.

Welding process and electrode	Heung, et al Cr(VI) (g/kg)	EPA HAP Emission Factors (AP-42) Cr(VI)(g/kg)	
SMAW - E316L	0.179	0.332	
SMAW – E310L	n/a	1.88	
SMAW – E308	n/a	0.359	
GMAW – ER316	0.0194	0.01	
FCAW with shield gas – E309LT	0.0146	n/a	
FCAW without shield gas – E309LT	0.2557	n/a	
FCAW - E316	n/a	0.14	

SMAW - Shielded Metal Arc Welding
GMAW – Gas-Metal Arc Welding
FCAW – Flux-Cored Arc Welding

Calculating quantities of hexavalent chromium compounds manufactured during welding operations to determine if 1000 lb reporting threshold is exceeded:

Threshold for TURA reporting and planning: 1000 lb hexavalent chromium compounds
Total lbs of electrode used x emission factor (lbs Cr(VI)/ 1000 lbs electrode) = lbs Cr(VI)
If assume that all Cr(VI) compounds are CrO_3, (particulate Cr compounds are typically oxides and halides) then compounds would be approximately twice the weight of the Cr(VI) (Cr = 52, O_3 = 48). Estimate 520 lb threshold for Cr(VI) as HHS.

e.g.,for largest emission factor – SMAW- E310L, 1.88 lb/1000 lbs:
520 lb Cr(VI) = (1.88 lbs/1000 lbs) x electrode used (lbs)
Electrode use to reach 500 lb Cr(VI) manufactured during welding = 277,000 lbs

References:
U.S. Environmental Protection Agency "Air Pollutant Emission Factors," Volume I, 5th Edition (AP-42), Chapter 12: Metallurgical Industry, Section 19: Electric Arc Welding, 1995.
http://www.epa.gov/ttn/chief/ap42/ch12/final/c12s19.pdf
U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, Emission Inventory Branch, "Development of Particulate and Hazardous - Emission Factors for Electric Arc Welding" (AP-42, Section 12.19), MRI Project No. 4601-02, May 20, 1994.
http://www.epa.gov/ttn/chief/ap42/ch12/bgdocs/b12s19.pdf
Heung, William, et al, "Emissions of Chromium (VI) from arc welding," Journal of the Air and Waste Management Association, Feb 1, 2007.

Guidance on Reporting Formaldehyde as Higher Hazard Substance (Effective Reporting Year 2012) and Quantifying its Use in Combustion Operations

There are changes to the requirements for submitting Formaldehyde under Massachusetts Department of Environmental Protection (MassDEP) Toxics Use Reduction (TURA) Form S reports due on July 1, 2013 covering reporting year 2012. This document explains the new reporting requirements and mechanics and provides guidance on determining if combustion activities at your facility are likely to trip the reporting thresholds.

4. Higher Hazard Designation

As of reporting year 2012 formaldehyde has been designated as a higher hazard substance with the following implications for reporting.

REPORTING THRESHOLD REDUCED TO 1000 POUNDS

Designation as a higher hazard substance lowers the reporting threshold from the current threshold of 25,000 pounds if the substance is manufactured or processed or 10,000 pounds if the substance is otherwise used to 1000 pounds. A Form S report is required for each higher hazard substance manufactured OR processed OR otherwise used at 1000 or more pounds in a calendar year. Note that these three types of use are NOT additive for the purposes of determining whether the threshold has been exceeded. For example, a facility that manufactured 700 pounds and otherwise used 350 pounds of formaldehyde would not be required to submit a Form S report on the substance, since neither type of use exceeded 1000 pounds.

STATE ONLY FORM Rs ARE REQUIRED FOR FORMALDEYDE

Designation as a higher hazard substance changes the mechanics of reporting Form R information to the MassDEP Toxics Use Reduction Program and to Environmental Protection Agency (EPA) Toxics Release Inventory (TRI). The TURA system will automatically generate State Only Form Rs for all substances for which the TURA reporting threshold is lower than the EPA Toxics Release Inventory threshold, and for all substances which have different "qualifiers" under the TURA and TRI systems. Therefore facilities will need to:

- Complete the "State Only Form R" for formaldehyde
- Submit a separate Form R to the EPA TRI program

5. What are Common Synonyms for formaldehyde

Formaldehyde (CAS#50-00-0) has several synonyms, including:

Formalin
Formol
Methylene Glycol
Methyl Aldehyde
Methylene Oxide

6. How Is Formaldehyde Commonly Used?

Formaldehyde is primarily used in the manufacture of wood adhesives applied to plywood, particleboard and other manufactured wood products, and in formaldehyde-based resins.[4] Other significant uses of formaldehyde include the manufacture of other chemicals, plastics and coatings, embalming and fertilizers.
Formaldehyde is generated in processes that use paraformaldehyde (CAS# 30525-89-4), formalin, or trioxane.

Formaldeyde may be coincidentally manufactured during the combustion of fuel.

7. Quantifying Formaldehyde Use in Combustion

Formaldehyde use occurs in combustion processes. In general, the quantities formaldehyde manufactured, processed, or otherwise used at a facility during combustion will be dependent on a number of factors, including the type of fuel combusted (coal, oil, gas), the type of combustor, and combustion conditions (e.g., temperature, air/fuel ratio).

Note that the information that follows is provided for general guidance – facilities are required to use the best readily available data applicable to their operations for threshold determinations.

MANUFACTURING:

Based on the EPA's AP-42 emission factors, 1000 or more pounds of formaldehyde is likely to coincidentally manufactured if annual fuel consumption is equal to or greater than the amounts listed below:

- Coal – 4.2 million tons
- No. 6 fuel oil – 30.3 million gallons
- No. 2 fuel oil – 16.4 million gallons
- Natural gas – 6,450 million ft^3

Additional data sources on the coincidental manufacture of formaldehyde during combustion can be found in the references cited at the end of this document.

OTHERWISE USE

A substance is "otherwise used" in a production process if it is neither manufactured nor incorporated into the final product. Therefore any contaminants contained in fuel are considered "otherwise used" in the combustion process. The *de minimis* concentration applies to materials that are otherwise used. Materials below the *de minimis* concentrations (0.1 % for formaldehyde) do not need to be counted toward the 1000 pound "otherwise use" threshold. However the entire quantity of substances that are present in concentrations above the *de minimis* level must be counted toward the 1000 pound "otherwise use" threshold

- **Formaldehyde** is not likely to be present in fuels or ash above the *de minimis* level

[4] Massachusetts Toxics Use Reduction Institute, Five Chemicals Alternatives Assessment Study: Chapter 4 – *Formaldehyde*. Available at http://www.turi.org/library/turi_publications/five_chemicals_study

REFERENCES FOR QUANITIFYING FORMALDEHYDE EMISSIONS FROM THE COMBUSTION OF FUEL

It is the responsibility of each facility to determine the best readily available data applicable to their operations. The methods and sources of data for quantifying formaldehyde use include, but are not limited to, the following:

1. Fuel-specific data for the fuels combusted (e.g., obtained from supplier).

2. Facility-specific monitoring data and/or emission factors.

3. For EPRI members – the PISCES database (provides emission factors and models to calculate air emissions), and Toxics Release Inventory for Power Plants (TRIPP) software.

4. EPA's *EPCRA Section 313 Industry Guidance – Electricity Generating Facilities*.

5. EPA emission factors from EPA's *Compilation of Air Pollutant Emission Factors (AP-42), 5th ed. - Chapter 1, External Combustion Sources*. These factors are based on a limited number of samples and may not reflect more accurate information available to the facility for the particular type of fuel combusted and pollution control devices used.

Guidance on Quantifying Use and Reporting Cyanide Compounds under the Toxics Use Reduction Act

As of reporting year 2016, Cyanide Compounds (TURA chemical category # 1016) has been designated as a Higher Hazard Substance (HHS), lowering the reporting threshold to 1,000 pounds. The new threshold will apply to cyanide compounds use in calendar year 2016, which will be reported on Form S reports due July 1, 2017. This document provides guidance on determining if activities at your facility are likely to trip the reporting thresholds and how cyanide use is reported in compliance with the Toxics Use Reduction Act, including how cyanide use is reported on Form S.

Definition of the Category

Cyanide compounds include any chemical substance with the chemical formula: $X^+ CN^-$ where $X = H^+$ or any other group where a formal dissociation can be made. Examples include potassium cyanide (KCN) and calcium cyanide ($Ca(CN)_2$). Consistent with the TRI cyanide category (#N106) definition, hydrogen cyanide and ethyl cyanide are reported as individual chemicals, and are not included in the category. They are reported under their individual CAS numbers.

Reporting Thresholds

For use during calendar year 2015, continue to observe the reporting thresholds of 25,000 pounds for cyanide compounds manufactured or processed and 10,000 pounds for cyanide compounds otherwise used. For use during calendar year 2016, the thresholds will be 1,000 pounds for each of these, for reporting on Form S under TURA, but will remain unchanged for federal TRI reporting on Form R. Note that these three types of use are NOT additive for the purposes of determining whether the threshold has been exceeded. For example, a facility that manufactured 700 pounds and otherwise used 350 pounds of cyanide compounds would not be required to submit a Form S report on the substance, since neither type of use exceeded 1,000 pounds. However, if more than one cyanide compound was used for the same type of use then those quantities would be additive (e.g. processing 700 pounds of zinc cyanide and processing 400 pounds of copper cyanide trips the 1,000 pound threshold).

Because the federal and state thresholds for cyanide compounds are different, a “State-Only Form R” is submitted to the state along with the Form S when use exceeds the lower state TURA reporting threshold. The TURA eDEP system will automatically generate State Only Form Rs for these situations. Submit a separate Form R to the EPA TRI program when federal thresholds are exceeded.

Report What Enters, Leaves and is Manufactured During Processing

For reporting on Form S, report not only on what enters and leaves the process, but also on what is manufactured within the process. Compounds leaving the production process/unit must be counted as byproduct before entering a wastewater treatment process.

Common Uses of Cyanide Compounds

Cyanide compounds are primarily used in Massachusetts for electroplating and stripping of metallic surfaces. Other possible uses of cyanide compounds include the extraction and refining of precious metals and the synthesis of nitrogen-containing organic chemicals.

Common Forms of Cyanide Compounds

Common cyanide compounds include cyanide salts of: sodium, potassium, calcium, iron, zinc, copper, silver, cadmium, and gold. The anhydrous salts may be used directly with water to make plating baths which can be augmented with pure metal anodes. Sometimes a concentrated gold cyanide solution is used directly in plating baths rather than handling the more expensive pure metal form.

Often when plating a metal onto another metal product surface, an aqueous solution of the metal cyanide, sodium or potassium cyanide, and non-cyanide additives are used. Sometimes metal cyanide solution is added to the bath as the metal is plated out, especially with precious metals such as gold. More often the desired metal concentration of the solution is maintained by continuously dissolving the pure metal from the anode. Over time

contaminants accumulate in the solution and cause inferior plating results. In this case the plating bath may be dumped for disposal or reclamation.

[NOTE: Atomic Weight of Copper is 63.546 and Molecular Weight of Cuprous Cyanide is 89.563 Molecular weight of Sodium Cyanide is 49.007]

Cyanide Compound Example: Electroplating

A **300 gallon** copper plating tank operates with **1,000 Liters of solution**. A fresh solution is made up at the beginning of the calendar year with **60 kilograms of Copper Cyanide and 94 kilograms of Sodium Cyanide**.

Over the course of the year, **323 kilograms** of copper are consumed from the anode, creating **455 kg of copper cyanide** as **323 kilograms** of copper are plated from the solution onto steel parts. Also, **25 Kg of Cyanide salts** have been added to maintain tank concentrations due to drag out losses.

At the end of the year the plating bath has accumulated contaminants and needs replacement.

Data for Byproduct Cyanide Compounds = 179 kg x 2.20 = 394 lbs.

Data for Form S, Section 1: Facility-Wide Use of Listed Chemical (Cyanide Compounds

c. Manufactured	*1,001 pounds of Copper Cyanide* *(455 kg x (2.20 lb/kg)*
d. Processed	*132 pounds of Copper Cyanide* *(60 kg x (2.20 lb/kg)* *When a given listed substance is introduced into production anywhere at the facility, it is counted only once at the facility level, regardless of how many times that listed substance is used, recycled or reused onsite. It is reported under the category that first trips the reporting threshold. Therefore, the 1,001 pounds of copper cyanide that was manufactured is reported as "manufactured". It is not included in the "processed" total because it was already reported as manufactured.* *(However, the total amount (1,133 pounds) manufactured and processed IS included in the production unit level reporting, and in the reported use range code.)*
e. Otherwise used	*262 pounds of Sodium Cyanide* *(94 kg + 25 kg) = 119 kg x (2.20 lb/kg)*
f. Byproduct	*394 pounds CuCN and NaCN* *(179 kg x (2.20 lb/kg)*
g. Shipped as Product	*0 pounds*

Form S, Section 2: Materials Balance
b. Chemical was Consumed or Transformed = 1,001 pounds of Copper Cyanide

RELEVANT REFERENCES

Background Document, Designation of Cyanide Compounds
TURI Summary of Policy Analysis for Cyanide Compounds, Aug. 12, 2014
http://www.turi.org/content/download/9405/164669/file/Policy%20analysis%20cyanide%20compounds%20-%20August%202014.pdf

Massachusetts Chemical Fact Sheet for Cyanide Compounds
http://www.turi.org/TURI_Publications/TURI_Chemical_Fact_Sheets/Cyanide_and_Cyanide_Compounds/Cyanide_and_Cyanide_Compounds_Fact_Sheet

1998 EPCRA Section 313 Questions and Answers
Question Numbers 137, 138, 111, 416
http://www.epa.gov/sites/production/files/2015-05/documents/qas_1998.pdf

Electroplating Engineering Handbook by Lawrence J. Durney, Van Nostrand Reinhold Company, 1984

EPA Toxics Release Inventory Program, Advanced Concepts Session Transcript
https://www3.epa.gov/tri/training/data/Ry15advanced/presentation_content/external_files/advanced_transcript.html

Advanced Surface Technology, Volume 1 by Per Moller and Lars Pleth Nielsen
Published by NASF and AESF Foundation, Copyright 2013, ISBN 978-87-92765-23-9

Guidance on Reporting Hydrofluoric Acid as a Higher Hazard Substance under the Toxics Use Reduction Act

As of reporting Year 2016, hydrofluoric acid also known as hydrogen fluoride (HF) – CAS # 7664-39-3 will be designated as a higher hazard substance (HHS) under TURA, lowering the reporting threshold to 1,000 pounds. This is effective for reports covering use in Calendar Year 2016 and due July 1, 2017. This document explains the new reporting requirements and provides general reporting guidance for HF.

REPORTING THRESHOLD LOWERED TO 1,000 POUNDS

Designation as a higher hazard substance lowers the reporting threshold from the current thresholds of 25,000 pounds if the substance is manufactured or processed; and 10,000 pounds if the substance is otherwise used, to 1,000 pounds for each of the three uses. A Form S report is required for each higher hazard substance used at 1,000 or more pounds in a calendar year. Note that these three types of use are NOT additive for the purposes of determining whether the threshold has been exceeded. For example, a facility that manufactured 700 pounds and otherwise used 350 pounds of hydrogen fluoride would not be required to submit a Form S report on the substance, since neither type of use exceeded 1,000 pounds.

USE STATE-ONLY FORM Rs

The TURA e-DEP system will automatically generate State Only Form Rs for all substances for which the TURA reporting threshold is lower than the EPA Toxics Release Inventory threshold, and for all substances which have different "qualifiers" under the TURA and TRI systems. Of course, if federal thresholds are exceeded, submit a separate Form R to the EPA TRI program and generate a State Only Form R as well.

GENERAL REPORTING GUIDANCE

8. How Is Hydrofluoric Acid Commonly Used in Massachusetts?

Hydrofluoric acid is primarily used in Massachusetts for metal cleaning (pickling and desmutting) and etching applications, or is coincidentally manufactured by facilities.

9. Properties of Hydrofluoric Acid

Anhydrous hydrofluoric acid or hydrogen fluoride is a liquid that easily vaporizes at room temperature. Aqueous solutions of hydrofluoric acid are commonly sold in concentrations from 70% to 38% (by weight). Boiling temperatures range from 67 F for anhydrous to 235 F for 35% hydrofluoric acid.

10. How do I determine if I trip the reporting threshold?

Processing HF: Facilities producing specialty blends of fluoride chemicals will primarily report hydrogen fluoride as processed and occasionally as manufactured.

> **Example 1**: The dilution of 1,430 pounds of 70% hydrofluoric acid to 49% hydrofluoric acid for resale would be considered *processing* 1,001 pounds of HF.
> **Example 2**: If 1,430 pounds of 70% hydrofluoric acid is used to manufacture fluoroboric acid, report 1,001 pounds of HF as *processed*.
> **Example 3**: If 2043 pounds of 49% hydrofluoric acid is used in solutions to remove oxides from stainless steel, report 1001 pounds HF as otherwise used.

Processing or Manufacturing HF from Ammonium Bifluoride or Other Fluoride Salts: When dry ammonium bifluoride (ABF) contacts water, it generates hydrofluoric acid. The hydrogen fluoride derived from fluoride salts (such as ABF) is considered *manufactured*. (EPA guidance 745-R-00-005)

Ammonium bifluoride used (*processed*) in dry blends for resale are not likely to have reportable quantities of HF. However, ammonium bifluoride added to water will *manufacture* HF. For example, if ABF is added to water with other proprietary constituents for resale, ABF could *manufacture* reportable quantities of HF depending upon the pH of the solution and other constituents that could affect the dissociation of ammonium bifluoride.

For example, HF for buffered etching solutions may be produced from ammonium bifluoride (CAS 1341-49-7) or ammonium fluoride (CAS 12125-01-8). In crystalline form these two chemicals may sublimate to produce ammonia and HF gases. Some companies, however, prefer to handle and store this solid form rather than a concentrated solution of HF. In solution ammonium bifluoride can typically produce up to **35%** of its weight as hydrogen fluoride. That is, 2,857 pounds of NH_5F_2 can produce 1,000 pounds of HF (and 1,857 pounds of NH_4F). Ammonium fluoride (NH_4F) is considered a neutral salt, but in the presence of a stronger acid is capable of producing up to **54%** of its weight in HF. That is, 1,852 pounds of NH_4F could produce up to 1,000 pounds of HF if driven by the presence of another acid in the solution or an energy source. Thus, if ammonium bifluoride is put into solution with a stronger acid, up to 70% of its weight can be produced as hydrogen fluoride (e.g., 2,000 lbs. HF from 2,857 lbs. of NH_5F_2).

Example: In the calendar year 3,000 pounds of ammonium bifluoride is consumed in an etching bath. **35%** of 3,000 pounds *manufactures* 1,050 pounds of HF which exceeds the 1,000 pound threshold. This 1,050 pounds of HF is also *otherwise used*. However, under TURA, when a given listed substance is introduced into production anywhere at the facility, it is counted *only once at the facility level*, regardless of how many times that listed substance is used, recycled or reused onsite. Report the first use category that trips the threshold. For example, if 1,050 pounds of HF is manufactured at the facility, it is reported as "manufactured". This amount is not also reported as "otherwise used" because it was already reported as manufactured. However, at *the production unit level*, the reportable substance *is* counted every time it is used (and if non integrally recycled, reused) in the process. In this case, the use range code reported for the production unit would reflect 2,100 pounds -- the sum of the amount manufactured and otherwise used.

Otherwise Use of HF: A substance is *otherwise used* in a production process if it is neither manufactured nor incorporated into the final product. The *de minimis* concentration applies to materials that are otherwise used. Materials below the *de minimis* concentrations (1.0 % for hydrofluoric acid) do not need to be counted toward the 1,000 pound *otherwise used* threshold. However the entire quantity of substances that are present in concentrations above the *de minimis* level must be counted toward the 1,000 pound *otherwise use* threshold.

11. Quantifying Hydrofluoric Acid Use in Combustion

Hydrofluoric acid is often *manufactured* in combustion processes, because. Fluoride compounds in fuels such as oil or municipal waste can be converted to hydrogen fluoride during combustion. The quantity of hydrogen fluoride manufactured at a facility during combustion will depend on a number of factors, including the type of fuel combusted (e.g., oil or municipal waste), the type of combustor, and combustion conditions (e.g., temperature and air/fuel ratio). Note that the information that follows is provided for general guidance – facilities are required to use the best readily available data applicable to their operations for threshold determinations.

Based on the EPA's AP-42 emission factors, 1,000 or more pounds of hydrofluoric acid are likely to be coincidentally *manufactured* if annual fuel consumption is greater than 26,800,000 gallons (No. 6 oil).

Hydrofluoric acid is also coincidentally generated during municipal waste combustion. EPA has not published emission factors for HF from municipal waste combustion. AP-42 has a general statement about the variability of acid gas emissions including HF. Given the variability in HF amounts, it is incumbent on municipal waste combustors to make their own best engineering judgment on how much HF is coincidentally manufactured in the combustion process. According to one Emission Calculation, prepared by Malcolm Pirnie, for the Palm Beach Renewable Energy Facility permit application, that MWC facility will exceed the 1,000 lb HF threshold when it processes 36,630 ton/year (100 ton/day). [Ref.-13 Appendix B Emission Calculations for Palm Beach Renewable Energy Facility No. 2]

Additional data sources on the coincidental manufacture of Hydrofluoric Acid during combustion can be found in the references cited at the end of this document. De minimis exemptions do not apply to manufactured chemicals.

REFERENCES

It is the responsibility of each facility to determine the best readily available data applicable to their operations. The methods and sources of data for quantifying hydrochloric acid use include, but are not limited to, the following –

1. TURI Summary of Policy Analysis for Hydrogen Fluoride, Aug. 12, 2014
   http://www.mass.gov/eea/docs/eea/ota/tur-prog/hydrogen-fluoride-hhs-comb-8-19-14-admin-council-mtg.pdf

2. Massachusetts Chemical Fact Sheet for Hydrofluoric Acid (1999)
   http://turi.org/content/download/3663/44840/file/Fact%20Sheet%20

3. "Etch Rates for Micromachining Processing" by Kirt R. Williams and Richard S. Muller
   Journal of Microelectromechanical Systems, Vol 5, No 4, December 1996

4. Safety of Hydrofluoric Acid vs. Ammonium Bifluoride
   http://www.finishing.com/94/62.shtml

5. Fuel-specific data for the fuels combusted (e.g., obtained from supplier).

6. Facility-specific monitoring data and/or emission factors.

7. AP-42: Table 1.1-15 Emission Factors for Coal Combustion
   http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf

8. AP-42: Refuse Combustion -2.1.3.3 and subsequent tables
   http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s01.pdf

9. Waste Treatment and Disposal / Paul T. Williams, John Wiley & Sons, copyright 2005 –
   chlorine and fluorine in municipal waste

10. For EPRI members – the PISCES database (provides emission factors and models to calculate air emissions), and Toxics Release Inventory for Power Plants (TRIPP) software.

11. EPA's *EPCRA Section 313 Industry Guidance – Electricity Generating Facilities*.

12. EPA emission factors from EPA's *Compilation of Air Pollutant Emission Factors (AP-42), 5th ed. - Chapter 1, External Combustion Sources*. These factors are based on a limited number of samples and may not reflect more accurate information available to the facility for the particular type of fuel combusted and pollution control devices used.

13. Health Effects of Municipal Waste Incineration, Editors Holly A. Hattemer-Frey and Curtis Travis, ISBN 0-8493-4933-8, CRC Press, 1991 copyright, Table 17; MSW Incineration Emission Factors.

14. Appendix B Emission Calculations for Palm Beach Renewable Energy Facility No. 2
    http://www.dep.state.fl.us/air/emission/bioenergy/palm_beach/3AppBemissions.pdf

Guidance for Reporting Toluene Diisocyanate (TDI) as a Higher Hazard Substance under TURA

The following three individually listed diisocyanates have been designated as higher hazard substances (effective reporting year 2017) with a reporting threshold of 1,000 pounds.

- 2,4-Toluene Diisocyanate (2,4-TDI) – CAS 584-84-9
- 2,6- Toluene Diisocyanate (2,6-TDI) – CAS 91-08-7
- Toluene Diisocyanate (TDI-mixed isomers) – CAS 26471-62-5
  For purposes of reporting under EPCRA Section 313 and TURA, "toluene diisocyanate (mixed isomers)" includes any possible mixture of any toluene diisocyanates in which the isocyanate groups are separated by one carbon in the ring (i.e., are one/three to each other). This listing includes the 2,4-, 2,6-, and 3,5- isomers of toluene diisocyanate (TDI).

1. A separate report and fee is required for each TDI isomer for which the 1,000 pound threshold is exceeded.
2. Calculate the threshold for each CAS number separately.

    a. The total quantity of TDI mixed isomers is calculated as the sum of ALL TDI isomers (not just 2,4 TDI and 2,6 TDI) present in the mixture at concentrations above the de minimus level.

    b. If using both TDI mixed isomers and one or both of the pure forms, do NOT add the amount of the pure form present in the mixed isomers to the total amount of the pure form used. Include only the amount of the pure form that was introduced into production.

    c. If using both TDI mixed isomers and one or both of the pure forms, do NOT add the amount of the pure form used to the total amount of the mixed isomers used. Include only the amount of the mixed isomers introduced into production.

3. State only Form Rs are required for these substances. Submit a separate federal Form R to EPA if the federal threshold for any of these substances is also exceeded.

Rules for Reporting the Use of Ammonia and Ammonium Hydroxide under TURA

To further clarify the reporting of ammonia and ammonium hydroxide under TURA, MassDEP recommends that reporting be consistent with EPCRA. Thus, there will not be a State-only Form R/A required for ammonium hydroxide, and TURA filers should not file a Form S for ammonium hydroxide (CAS# 1336-21-6). Only one fee will be required to the state for the reporting of ammonia as ammonium hydroxide. MassDEP interprets ammonium hydroxide to be equivalent to aqueous ammonia (as does EPCRA), and 10% of aqueous ammonia (CAS# 7664-41-7) is reportable under TURA, effective reporting year 2000. Please refer to the EPCRA Section 313 Guidance for Reporting Aqueous Ammonia, Revised April 2018, EPA 745-R-00-005, at: https://ofmpub.epa.gov/apex/guideme_ext/f?p=guideme:gd-title:::::title:ammonia.

The following is quoted from #451, EPCRA Section 313 Questions and Answers, December 1998, EPA 745-B-98-004:

" . . . The chemical ammonium hydroxide (NH_4OH) is a misnomer. It is a common name used to describe a solution of ammonia in water (i.e., aqueous ammonia), typically a concentrated solution of 28 to 30 percent ammonia. EPA has consistently responded to questions regarding the reportability of these purported ammonium hydroxide solutions under the EPCRA Section 313 ammonia listing by stating that these are 28 to 30 percent solutions of ammonia in water and that the solutions are reportable under EPCRA Section 313 ammonia listing. For a more detailed discussion, see page 34175 of the Federal Register final rule of June 30, 1995 (60 FR 34172).

Facilities should use the percent total ammonia specified on the label of ammonium hydroxide solutions they purchase to determine the total ammonia content in these solutions. Ammonium hydroxide has the chemical formula NH_4OH; however, as mentioned above, strong evidence indicates that the species NH_4OH does not exist. Bottles of concentrated aqueous ammonia purchased from chemical supply companies are almost always labeled ammonium hydroxide. These solutions primarily consist of molecules of NH_3 dissolved in water (along with small amounts of ionized ammonia) . . . "

Please note that different chemical suppliers will reference the % of ammonia in different ways. Therefore, it is recommended that facilities contact their chemical suppliers to specify the amount of ammonia per gallon. This question could be specified in "percent by weight per gallon" or in "number of pounds per gallon" of solution, for example.

✓**Example 1**
Facility otherwise uses 1,000,000 pounds of 30% solution by weight of ammonium hydroxide (30% ammonia by weight). 1,000,000 pounds x 0.30 = 300,000 pounds of ammonia Only 10% of ammonia is reportable on Form R per EPA Guidance for Reporting Aqueous Ammonia 300,000 x 0.10 = 30,000 pounds of ammonia This facility would complete one Form S and one Form R for 30,000 pounds of reportable ammonia (see EPCRA Guidance for Reporting Aqueous Ammonia).
✓**Example 2**
54,231 gallons of aqueous ammonia (19.0%) 54,231 gallons x 8.34 pounds/gallon x 0.935 specific gravity = 422,888 pounds aqueous ammonia x 19.0% 80,349 pounds ammonia x 10% reportable ammonia = 8,035 pounds ammonia This facility does not meet TURA or TRI reporting thresholds.

Guidance for TURA Reporting and Planning for Certain Metals and Metal Alloys

An alloy is a mixture of two or more metals or one or more metals and a nonmetal, as in carbon steel.

Effective reporting year 1995, the TURA Administrative Council delisted certain metals when present in a solid or molten alloy, but not including aerosols. The metals are:

Copper
Nickel
Chromium
Cobalt
Manganese

Effective reporting year 1998, the TURA Administrative Council delisted silver-copper mixture when present in an alloy form, but not including aerosols.

The established definition of an "alloy" requires that metals mixed with the primary metal must be intentionally added to improve its properties. A metallic substance that is pure or contains other metals as impurities is not considered an alloy. Consequently, copper and silver that is pure or that contains small amounts of impurities were not covered by the two Administrative Council delistings described above.

Effective reporting year 1999, however, the Administrative Council delisted pure (i.e., zero valance) copper and pure silver (including forms containing impurities), but not including aerosols.

The delistings for all the metals described above **DO NOT** extend to aerosols, dissolved metals, metal compounds, or metals that are not zero valence throughout the entire production process. Note that aerosols are metal particles that are less than 50 microns in diameter.

These metals have not been delisted from the EPCRA Toxics Release Inventory (TRI) List. Although delisting by the TURA Administrative Council means that no Toxics Use Report need be submitted, the federal Form R is still required by EPA. The federal Form R submitted to MassDEP should be identified as "federal only."

Guidance

Questions have been raised regarding implementation of these delistings. This guidance has been produced to assist the regulated community in complying with TURA. If you have any remaining questions after reading this document, please contact MassDEP for compliance assistance or the Office of Technical Assistance for further information.

The delisted metals are copper, nickel, chromium, cobalt, manganese and silver. Some of the processes in which those metals might be used are described below with specific guidance.

- Etching processes – When a metal is removed from metal stock through chemical processing, the resultant metal salt is reportable if it is produced in threshold quantities. (In this case, the metal salt is "coincidentally manufactured.") The 25,000-pound threshold would apply if the metal salt were the only reportable chemical. It should be noted that the entire weight of the metal salt is

considered when determining whether a threshold has been met, and not just the amount of the metal in the salt. As for the stock itself, any delisted metals contained in it are not reportable.

- Electropolishing operations - The metal salts in solution are reportable as "coincidentally manufactured" if they are produced in threshold quantities. Any delisted metals contained in the stock are not reportable.

- Grinding Operations - The delisted metals are not exempt from reporting when contained in aerosols, i.e., particles less than 50 microns in diameter (in this case, the metal is reported as "processed"). These metals are reportable if they are present in threshold quantities. When determining whether the reporting threshold has been exceeded, only the weight of the listed metal in the aerosol is considered, and not the total weight of the aerosol. Any delisted metals contained in the stock are not reportable.

- Multiple processes - In production units with multiple processes, certain individual processes may produce metal aerosols or metal salts in solution. Those aerosols and metal salts in solution would be reportable if produced in threshold quantities, as described above.

- Alloys in powdered form - If a metal is used in the powdered form, the facility will need to perform a particle size analysis to determine the amount of material less than 50 microns in size. If threshold quantities are produced, the metals are reportable if they are present in particles less than 50 microns in size. When determining whether the reporting threshold has been exceeded, only the weight of the listed metal is considered, and not the total weight of particles.

Note: MassDEP's "Expanded Article" exemption is no longer applicable, since it applied to metals that have been delisted under TURA.

Difference in TRI and TURA Reporting of Hydrochloric Acid and Sulfuric Acid

- A qualifier was added to **hydrochloric acid (CAS No. 7647-01-0)** on the EPCRA list that relieves TRI reporting for non-aerosol forms, effective reporting year 1996. A similar qualifier was added for **sulfuric acid (CAS No. 7664-93-9)** effective reporting year 1995. TRI reporting only is required for acid aerosols including mists, gas, vapors, fog, and other airborne forms of any particle size. **This qualifier is only applicable to EPCRA Form R submissions**.

- Since this chemical also is on the CERCLA list, **all forms (both aerosol and non-aerosol) are reportable under TURA**. A "State-Only" Form R must be submitted with the Form S for these acids**,** in addition to the Form R submitted to EPA for only acid aerosols.

- For additional assistance on calculating and reporting sulfuric acid, please refer to the following EPA document: Sulfuric Acid: EPA-745-R-97-007 (11/97) Guidance for Reporting Sulfuric Acid (acid aerosols including mists, vapors, gas, fog and other forms of any particle size). This document is available from the EPA EPCRA Hotline 1-800-535-0202 and can be downloaded off the EPA TRI home page at http://www.epa.gov/tri/.

Rules for Reporting Glycol Ethers

There are separate categories for glycol ethers defined under EPCRA and CERCLA.
(Please refer to the TRI guidance document, "List of Toxic Chemicals within the Glycol Ethers Category and Guidance for Reporting," EPA 745-R-00-004.)

Reporting Guidance

EPCRA: Glycol Ethers are reportable as the glycol ethers category, (1022). The glycol ethers category is defined by the following formula:

$$R - (OCH_2CH_2)_n - OR'$$

where:

n = 1, 2, or 3;
R = Alkyl C7 or less, or phenyl or alkyl substituted phenyl;
R' = H or alkyl C7 or less, or
OR' consisting of a carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

Chemicals that meet this category definition are reportable.

Individually Listed Glycol Ethers
There are two chemicals, 2-methoxyethanol (CAS number 109-86-4) and 2-ethoxyethanol (CAS number 110-80-5) that are on the individual chemical list and CAS number list (40 CFR 372.65(a) and (b)). Threshold determinations should be made for each of these chemicals individually and separately from the glycol ethers category.

(continued on next page)

Reporting Guidance

CERCLA: Glycol Ethers are reportable under CERCLA as defined by the following chemical formula:

Includes mono and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-$(OCH_2CH_2)_n$-OR' where:

-n= 1, 2, or 3.
-R= alkyl or aryl groups.
-R'= R, H, or groups which, when removed, yield glycol ethers with the structure: R-$(OCH_2CH_2)_n$-OH. Polymers are excluded from the glycol category.

Any glycol ether that meets the CERCLA definition only is reportable if it is specifically named on the TURA list. If a glycol ether meets both the EPCRA and the CERCLA definitions, it is reportable under the EPCRA category (N230).

Rules for Reporting Specifically Listed Chemicals vs. Chemical Categories

The table below summarizes how to report chemicals that are specifically listed and/or listed as chemical categories. Descriptions of specific reporting requirements for each row follow the table.

Row No.	EPCRA Specific Chemical	EPCRA Category	CERCLA Specific Chemical	CERCLA Category	Report as:
1	Yes	Yes			EPCRA Specific Chemical
2	Yes			Yes	EPCRA Specific Chemical
3			Yes	Yes	CERCLA Specific Chemical
4		Yes			EPCRA Category
5		Yes		Yes	EPCRA Category
6				Yes	Do Not Report *
7		Yes	Yes		EPCRA Category

Rows 1 & 2:

If a specific chemical is named on EPCRA and it also is reportable under either an EPCRA or CERCLA listed category, it should be reported **only as a specific EPCRA chemical, not under the category.**

✓Example

: EPCRA category (Compounds), EPCRA specifically listed
Report as: EPCRA specific chemical (Hydrogen Cyanide)

1,2,4 Trichlorobenzene: EPCRA specifically listed, CERCLA category (Chlorinated Benzenes)
Report as: EPCRA specific chemical (1,2,4 Trichlorobenzene)

Row 3:
When a specifically listed CERCLA chemical falls within a CERCLA listed category, it should be reported **only as the specific CERCLA chemical.**

✓Example

- Benzenesulfonyl Chloride: CERCLA specifically listed, CERCLA category (Chlorinated Benzenes)
  Report as: CERCLA specific chemical (Benzenesulfonyl Chloride)

Row 4:

Chemicals falling under an EPCRA chemical category or categories which are not specifically listed under EPCRA or CERCLA should be reported under the EPCRA chemical category or categories.

✓Example: Silver Nitrate, Reporting Two Competing Compound Classes

If you are reporting Silver Nitrate, you need to report under both the Silver Compounds and Nitrate Compounds categories.

∗ **Report the SAME weight for Silver Compounds and Nitrate Compounds use (total weight of the compound) on EACH Form S.**

∗ For Byproduct tracking, report ONLY the weight of the reportable constituent for each category.

∗ In Section 2 of each Form S, enter the weight of the chemical in d.

∗ Even though you will file 2 separate Form S's for Silver Compounds and Nitrate Compounds, you will **pay only ONE TURA fee for both chemicals**. (Example Form S's are shown on the next page.)

Row 5:

Chemicals falling under an EPCRA chemical category and a CERCLA chemical category which are not specifically listed under EPCRA or CERCLA should be reported under the EPCRA chemical category.

Row 6:

Chemicals that only are listed as a CERCLA category are not reportable.

CERCLA Category only: phthalate esters, polynuclear aromatic hydrocarbons, polycyclic organic matter, glycol ethers, chlorinated phenols, etc. should NOT be reported unless they are specifically named.

Row 7:

Chemicals falling under an EPCRA chemical category and are specifically listed under CERCLA should be reported under the EPCRA chemical category.

✓Form S Example:

Section 1: Facility-Wide Use of Listed Chemical

1037
a. CAS #

Silver Compounds
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. NOTE: "Generated as byproduct" (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

26,000
d. Processed

e. Otherwise used

635
f. Generated as Byproduct

25,000
g. Shipped in or as product

h. ☐ Check here to input Form R or A information to MassDEP

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

a. Chemical was recycled on site

b. Chemical was consumed or transformed

c. Chemical was held in inventory

365
d. Chemical is a compound

e. Other (explain below)

f. Did anything non-routine occur at your facility during the reporting year which affected the data reported?
☐ Yes* ☐ No *If your answer is Yes, you may explain in Section 4.l. on Page 3.

Section 1: Facility-Wide Use of Listed Chemical

1090
a. CAS #

Nitrate Compounds
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) generally means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

26,000
d. Processed

e. Otherwise used

365
f. Generated as Byproduct

h. ☐ Check here to input Form R or A information to MassDEP

i. Production Ratio

25,000
g. Shipped in or as product

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

a. Chemical was recycled on site	b. Chemical was consumed or transformed 635
c. Chemical was held in inventory	d. Chemical is a compound
e. Other (explain below)	

f. Did anything non-routine occur at your facility during the reporting year which affected the data reported?
☐ Yes* ☐ No *If your answer is Yes, you may explain in

Guidance on Certain TURA Reportable Chemical Categories

TURA requires reporting on many chemical categories. The individual chemicals included in each chemical category should always be reported in their parent chemical category (e.g., antimony compounds), and not as individual chemicals. Below is guidance on which individual chemicals are included in some of the reportable chemical categories. Please note that this is not an exhaustive list of reportable chemical categories or of individual chemicals within the chemical categories listed below.

Chemical Category	CAS No.	Chemical Name
1000 Antimony Compounds Includes any unique chemical substance that contains antimony as part of the chemical's infrastructure. Includes, but is not limited to:	1309-64-4	Antimony Trioxide
	7647-18-9	Antimony Pentachloride
	7783-56-4	Antimony Trifluoride
	7789-61-9	Antimony Tribromide
	10025-91-9	Antimony Trichloride
	28300-74-5	Antimony Potassium Tartrate
1001 Arsenic Componds Includes any unique chemical substance that contains arsenic as part of the chemical's infrastructure. Includes, but is not limited to:	692-42-2	Diethylarsine
	696-28-6	Dichlorophenylarsine
	1303-28-2	Arsenic Pentoxide
	1303-32-8	Arsenic Disulfide
	1303-33-9	Arsenic Trisulfide
	1327-52-2	Arsenic Acid
	1327-53-3	Arsenic Trioxide
	7631-89-2	Sodium Arsenate
	7645-25-2	Lead Arsenate
	7778-39-4	Arsenic Acid
	7778-44-1	Calcium Arsenate
	7784-34-1	Arsenous Trichloride
	7784-40-9	Lead Arsenate
	7784-41-0	Potassium Arsenate
	7784-46-5	Sodium Arsenite
	10102-48-4	Lead Arsenate
	10124-50-2	Potassium Arsenate
	52740-16-6	Calcium Arsenate
1002 Barium Compounds Includes any unique chemical substance that contains barium as part of the chemical's infrastructure. Does not include barium sulfate, CAS # 7727-43-7. Includes, but is not limited to:	542-62-1	Barium Cyanide

Chemical Category	CAS No.	Chemical Name
1003 Beryllium Compounds Includes any unique chemical substance that contains beryllium as part of the chemical's infrastructure. Includes, but is not limited to:	7787-47-5	Beryllium Chloride
	7787-49-7	Beryllium Fluoride
	7787-55-5	Beryllium Nitrate
	13597-99-4	Beryllium Nitrate
1004 Cadmium Compounds Includes any unique chemical substance that contains cadmium as part of the chemical's infrastructure. Includes, but is not limited to:	543-90-8	Cadmium Acetate
	7789-42-6	Cadmium Bromide
	10108-64-2	Cadmium Chloride
1009 Chlorophenols Please see EPA TRI reporting instructions. Includes, but is not limited to:	58-90-2	2,3,4,6-Tetrachlorophenol
	87-65-0	2,6 Dichlorophenol
	95-57-8	2-Chlorophenol
	609-19-8	3,4,5 Trichlorophenol
	933-75-5	2,3,6 Trichlorophenol
	933-78-8	2,3,5 Trichlorophenol
	5344-82-1	2-Chlorophenolthiourea
	7005-72-3	Chlorophenyl Phenyl Ether
	15950-66-0	2,3,4 trichlorophenol
	25167-82-2	Trichlorophenol

	CAS No.(s)	Chemical Formula	Compound
1216 Cr(VI) Chromium Compounds Hexavalent Chromium Compounds. Please refer to guidance on reporting Hexavalent Chromium Compounds in Appendix B. This list includes, but is not limited to the following compounds:	7788-98-9	$(NH_4)_2Cr0_4$	Ammonium Chromate
	7789-09-5	$(NH_4)_2Cr_2O_7$	Ammonium Dichromate
	10294-40-3	$BaCrO_4$	Barium Chromate
	1189-85-1	$[(CH_3)_3CO]_2CrO_2$	tert-Butyl Chromate
	13765-19-0	$CaCrO_4$	Calcium Chromate
	7738-94-5	H_2CrO_4	Chromic Acid
	14986-48-2	$CrCl_6$	Chromium VI Chloride
	1333-82-0	CrO_3	Chromic Trioxide
	18540-29-9	Cr^{6+}	Hexavalent Chromium Ion
	7758-97-6	$PbCrO_4$	Lead Chromate
	8454-12-1	$PbCrO_4$-PbO	Lead Chromate Oxide
	16037-50-6	$KCrO_3Cl$	Potassium Chlorochromate

	7789-00-6	K_2CrO_4	Potassium Chromate
	7778-50-9	$K_2Cr_2O_7$	Potassium Dichromate
	7784-01-2	Ag_2CrO_4	Silver Chromate
	7775-11-3 or 2146-10-8	Na_2CrO_4	Sodium Chromate
	7789-12-0	$Na_2Cr_2O_7 \cdot 2H_2O$	Sodium Dichromate Dihydrate
	10588-01-9	$Na_2Cr_2O_7$	Sodium Dichromate
	7789-06-2 or 2151-06-8	$SrCrO_4$	Strontium Chromate
	13530-65-9	$ZnCrO_4$	Zinc Chromate
	14018-95-2	$ZnCr_2O_7$	Zinc Dichromate

Chemical Category	CAS No.	Chemical Name
1217 Non Cr(VI) Chromium Compounds Non-Hexavalent Chromium Compounds. Includes, but is not limited to*:	1066-30-4	Chromic Acetate
	10101-53-8	Chromic Sulfate
	1308-31-2	Chromite
	10049-05-5	Chromous Chloride
	7788-97-8	Chromous Fluoride
1013 Cobalt Compounds Includes any unique chemical substance that contains cobalt as part of the chemical's infrastructure. Includes, but is not limited to:	544-18-3	Cobaltous Formate
	7789-43-7	Cobaltous Bromide
	14017-41-5	Cobaltous Sulfamate
1015 Copper Compounds Includes any unique chemical substance that contains copper as part of the chemical's infrastructure. Does not include copper phthalocyanine compounds that are substituted with only hydrogen, and/or chlorine, and/or bromine. Includes, but is not limited to:	137-29-1	Copper, bis(dimethylcarbamodithioato-s-s)-
	544-92-3	Copper Cyanide
	815-82-7	Cupric Tartrate
	3251-23-8	Cupric Nitrate
	5893-66-3	Cupric Oxalate
	7447-39-4	Cupric Chloride
	7758-98-7	Cupric Sulfate
	10380-29-7	Cupric Sulfate, Ammoniated
1016 Cyanide Compounds X^+CN^- where $X = H^+$ or any other group where a formal	57-12-5	Cyanides
	143-33-9	Sodium Cyanide
	151-50-8	Potassium Cyanide

dissociation may occur. For example KCN or $CA(Cn)_2$. Includes, but is not limited to:	460-19-5	Cyanogen
	506-61-6	Potassium Silver Cyanide
	506-64-9	Silver Cyanide
	506-68-3	Cynogen Bromide
	506-77-4	Cyanogen Chloride
	542-62-1	Barium Cyanide
	544-92-3	Copper Cyanide
	557-19-7	Nickel Cyanide
	557-21-1	Zinc Cyanide
	592-01-8	Calcium Cyanide
	592-04-1	Mercuric Cyanide
	592-85-8	Mercuric Thiocyanate
	592-87-0	Lead Thiocyanate
	1762-95-4	Ammonium Thiocyanate

*Note: (trivalent) Chromic Oxide, CAS# 1308-38-9 (Cr_20_3) was delisted from TURA in 1995.

Chemical Category	CAS No.	Chemical Name
1050 Diisocyanates Includes only the chemicals listed here.	91-93-0	3,3'-Dimethoxybenzidine-4,4' di-isocyanate
	91-97-4	3-3'-Dimethyl-4,4'-diphenylene diisocyanate
	101-68-8	Methylenebis(phenylisocyanate)(MDI) (previously reportable under EPCRA)
	104-49-4	1,4 Phenylene diisocyanate
	123-61-5	1,3-Phenylene diisocyanate
	139-25-3	3-3' Dimethyl diphenylmethane-4-4' siisocyanate
	822-06-0	Hexamethylene 1,6 -diisocyanate
	2556-36-7	1,4 Cyclohexane diisocyanate
	3173-72-6	1,5 Naphthalene diisocyanate
	4098-71-9	Isophorone diisocyanate
	4128-73-8	4,4'-diisocyanatodiphenylether
	5124-30-1	1,1-Methylene bis(4-isocyanato-cyclohexane
	9016-87-9	Polmeric diphenylmethane diisocyanate
	10347-54-3	1,4-Bis(methylisocyonate)cyclohexane
	15646-96-5	2,4,4-Trimethylhexamethylene di-isocyanate
	16938-22-0	2,2,4-Trimethylhexamethylene diisocyanate
	38661-72-2	1,3-Bis(methylisocyanate)cyclo-hexane
	75790-84-0	4-Methyldiphenylmethane-3,4-diisocyanate
	75790-87-3	2,4'-Diisocyanatodiphenyl sulfide
	134190-37-7	Diethyldiisocyanatobenzene
1060 Dioxin & Dioxin-Like Compounds Manufacturing; and the processing or otherwise use of dioxin or dioxin-like compounds if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacture of that chemical. Includes only the chemicals listed here.	1746-01-6	2,3,7,8- Tetrachlorodibenzo-p-dioxin
	3268-87-92	1,2,3,4,6,7,8,9- Octachlorodibenzo-p-dioxin
	19408-74-3	1,2,3,7,8,9- Hexachlorodibenzo-p-dioxin
	35822-46-9	1,2,3,4,6,7,8- Heptachlorodibenzo-p-dioxin
	39001-02-0	1,2,3,4,6,7,8,9- Octachlorodibenzofuran
	39227-28-6	1,2,3,4,7,8-- Hexachlorodibenzo-p-dioxin
	40321-76-4	1,2,3,7,8-- Pentachlorodibenzo-p-dioxin
	51207-31-9	2,3,7,8- Tetrachlorodibenzofuran
	55673-89-7	1,2,3,4,7,8,9- Heptachlorodibenzofuran
	57117-31-4	2,3,4,7,8- Pentachlorodibenzofuran
	57117-41-6	1,2,3,7,8- Pentachlorodibenzofuran
	57117-44-9	1,2,3,6,7,8- Hexachlorodibenzofuran
	57653-85-7	1,2,3,6,7,8- Hexachlorodibenzo-p-dioxin
	60851-34-5	2,3,4,6,7,8- Hexachlorodibenzofuran
	67562-39-4	1,2,3,4,6,7,8- Heptachlorodibenzofuran
	70648-26-9	1,2,3,4,7,8- Hexachlorod-benzofuran
	72918-21-9	1,2,3,7,8,9- Hexachlorodibenzofuran

Chemical Category	CAS No.	Chemical Name
Ethylenebisdithiocarbamic acid, salts, esters Includes any unique chemical substance that contains an EBDC or an EBDC salt as part of that chemical's infrastructure. Includes, but is not limited to:	111-54-6	Ethylenebisdithiocarbamic acid, salts, esters
1022 Certain Glycol Ethers Please see guidance on Glycol Ethers in Appendix B		
1026 Lead Compounds Includes any unique chemical substance that contains lead as part of the chemical's infrastructure. Includes, but is not limited to:	301-04-2	Lead Acetate
	592-87-0	Lead Thiocyanate
	1072-35-1	Lead Stearate
	1314-87-0	Lead Sulfide
	1335-32-6	Lead Subacetate
	7428-48-0	Lead Stearate
	7446-27-7	Lead Phophate
	7446-14-2	Lead Sulfate
	7645-25-2	Lead Arsenate
	7758-95-4	Lead Chloride
	7783-46-2	Lead Fluoride
	10099-74-8	Lead Nitrate
	10101-63-0	Lead Iodide
	10102-48-4	Lead Arsenate
	13814-96-5	Lead Fluoborate
	15739-80-7	Lead Sulfate
	52652-59-2	Lead Stearate
	56189-09-4	Lead Stearate
1027 Manganese Compounds Includes any unique chemical substance that contains lead as part of the chemical's infrastructure. Includes, but is not limited to:	7722-64-7	Potassium Permanganate
	15339-36-3	Manganese, bis(dimethylcarbamodithiato-s-s)
1028 Mercury Compounds Includes any unique chemical substance that contains mercury as part of the chemical's infrastructure. Includes, but is not limited to:	592-04-1	Mercuric Cyanide
	592-85-8	Mercuric Thiocyanate
	628-86-4	Mercury Fulminate
	7782-86-7	Mercurous Nitrate
	7783-35-9	Mercuric sulfate
	10415-75-5	Mercurous Nitrate
	10045-94-0	Mercuric Nitrate

Chemical Category	CAS No.	Chemical Name
1029 Nickel Compounds Includes any unique chemical substance that contains nickel as part of the chemical's infrastructure. Includes, but is not limited to:	557-19-7	Nickel Cyanide
	7718-54-9	Nickel chloride
	7786-81-4	Nickel Sulfate
	12054-48-7	Nickel Hydroxide
	13463-39-3	Nickel Carbonyl
	14216-75-2	Nickel Nitrate
	15699-18-0	Nickel Ammonium Sulfate
	37211-05-5	Nickel chloride
1055 Nicotine and Salts Includes any unique chemical substance that contains nicotine or a nicotine salt as part of the chemical's infrastructure. Includes, but is not limited to:	54-11-5	Nicotine
1090 Nitrate Compounds (water dissociable) Includes, but is not limited to:	1004-54-0	Mercuric Nitrate
	7761-88-8	Silver Nitrate
	7779-88-6	Zinc Nitrate
	7782-86-7	Mercurous Nitrate
	7787-55-5	Beryllium Nitrate
	10099-74-8	Lead Nitrate
	10102-06-4	Uranyl nitrate
	10102-45-1	Thallium Nitrate
	10415-75-5	Mercurous Nitrate
	10421-48-4	Ferric Nitrate
	13597-99-4	Beryllium Nitrate
	13746-89-9	Zirconium Nitrate
	14216-75-2	Nickel Nitrate
	36478-76-9	Uranyl Nitrate
1034 Polybrominated Biphenyls (PBBs) Please see EPA guidance.		
1045 Polychlorinated alkanes Please see EPA guidance.		

Chemical Category	CAS No.	Chemical Name
1035 Polycyclic Aromatic Compounds Includes only the chemicals listed here.	50-32-8	Benzo(a)pyrene
	53-70-3	Dibenzo(a,h)anthracene
	56-49-5	3-Methylcholanthrene
	56-55-3	Benz(a)anthracene
	57-97-6	7,12-Dimethylbenz(a)anthracene
	189-55-9	Benzo(r,s)pentaphene
	189-64-0	Benzo(a,h)pyrene
	191-30-0	Dibenzo(a,l)pyrene
	192-65-4	Dibenzo(a,e)pyrene
	193-39-5	Indeno[1,2,3-cd]pyrene
	194-59-2	7H-Dibenzo(c,g)carbazole
	205-99-2	Benzo(b)fluoranthene
	205-82-3	Benzo(j)fluoranthene
	206-44-0	Benzo(j.k)fluorene
	207-08-9	Benzo(k)fluoranthene
	218-01-9	Benzo(a)phenanthrene
	224-42-0	Dibenz(a,j)acridine
	226-36-8	Dibenz(a,h)acridine
	3697-24-3	5-Methylchrysene
	5385-75-1	Dibenzo(a,e)Fluoranthene
	5522-43-0	1-Nitropyrene
1036 Selenium Compounds Includes any unique chemical substance that contains selenium as part of the chemical's infrastructure. Includes, but is not limited to:	144-34-3	Carbamodithioic Acid, dimethyl- ,Tetraanhydrosulfid with Orthothioselenious Acid
	630-10-4	Selenourea
	7446-08-4	Selenium Dioxide
	7488-56-4	Selenium sulfide
	7782-82-3	Sodium Selenite
	7783-00-8	Selenious Acid
	10102-18-8	Sodium Selenite
	12039-52-0	Selenious Acid, Dithallium (1+) Salt
1037 Silver Compounds Includes any unique chemical substance that contains silver as part of the chemical's infrastructure. Includes, but is not limited to:	506-61-6	Potassium Silver Cyanide
	506-64-9	Silver Cyanide
	7761-88-8	Silver Nitrate
1070 Strychnine and Salts Includes any unique chemical substance that contains strychnine or a strychnine salt as part of the chemical's infrastructure. Includes, but is not limited to:	57-24-9	Strychnine and Salts

Chemical Category	CAS No.	Chemical Name
1038 Thallium compounds Includes any unique chemical substance that contains thallium as part of the chemical's infrastructure. Includes, but is not limited to:	563-68-8	Thallium Acetate
	1314-32-5	Thallic Oxide
	6533-73-9	Thallous Carbonate
	7446-18-6	Thallium sulfate
	7791-12-0	Thallium Chloride
	10031-59-1	Thallium sulfate
	10102-45-1	Thallium Nitrate
	12039-52-0	Selenious Acid, dithallium (1+0 Salt
1065 Vanadium Compounds Includes any unique chemical substance that contains vanadium as part of the chemical's infrastructure. Includes, but is not limited to:	1314-62-1	Vanadium Pentoxide
1039 Zinc Compounds Includes any unique chemical substance that contains zinc as part of the chemical's infrastructure. Includes, but is not limited to:	127-82-2	Zinc Phenolsulfonate
	137-30-4	Zinc, Bis(dimethylcarbomodithiato-S,S)-
	557-21-1	Zinc Cyanide
	557-34-6	Zinc Acetate
	557-41-5	Zinc Formate
	1314-84-7	Zinc Phosphide
	1332-07-6	Zinc Borate
	3486-35-9	Zinc Carbonate
	7646-85-7	Zinc Chloride
	7699-45-8	Zinc Bromide
	7720-78-7	Zinc Sulfate
	7779-86-4	Zinc Hydrosulfite
	7779-88-6	Zinc Nitrate
	7783-49-5	Zinc Fluoride
	14324-55-1	Zinc,Bis(diethylcarbamodithioato-S,S)-
	14639-97-5	Zinc Ammonium Chloride
	14639-98-6	Zinc Ammonium Chloride
	16871-71-9	Zinc Silicofluoride
	52628-25-8	Zinc Ammonium Chloride

Appendix C: Form S, Section 4: Toxics Use by Production Unit

This section provides guidance in completing Section 4 of the Form S. The purpose of Section 4 of the Form S, is to indicate if use and/or byproduct increased or decreased by more than 10% compared to the previous reporting year, and if so, what lead to the change as indicated by TUR technique codes).

Four example situations are presented. Each example is followed by a properly completed Form S for the situation, and then a solution. The four examples are:

- Example 1: Production increase and chemical use in production unit and waste treatment operations
- Example 2: Increase in production and TUR implementation
- Example 3: Product reformulation and on-site recycling
- Example 4: Web coating improved cleaning operation with chemical substitution
-

Example #1 – Production increase and chemical use in production unit and waste treatment operations

Company ABC (Facility ID 70709) etches aluminum with sodium hydroxide and then anodizes the aluminum part using sulfuric acid (CAS 8014-95-7). For reporting year 2009 the company reported 120,000 pounds of sulfuric acid otherwise used, 50,000 pounds of that use was waste treatment pH neutralization and 70,000 pounds was used in anodizing (process code AA-18) in production unit #1. The company reported 50,000 pounds of byproduct for reporting year 2009 and 20,000 pounds of sulfuric acid consumed or transformed on line 2b of the Form S.

The company's Form S for sulfuric acid in reporting year 2009 is:

1e.	120,000 lbs	Otherwise used
1f.	50,000 lbs	Generated as Byproduct
2b.	20,000 lbs	Chemical was consumed or transformed
3b.	50,000 lbs	Amount of chemical used in waste treatment

Assuming all process efficiencies stayed the same in reporting years 2009 and 2010, and the company did not implement TUR projects in reporting year 2010, how would the facility complete the reporting year 2010 Form S if they had a 14% increase in business production and used 80,000 pounds of sulfuric acid in production unit #1? Assume the company used 50,000 pounds of sulfuric acid in waste treatment in reporting year 2010 and it reported a facility-wide use of sulfuric acid of 130,000 pounds in reporting year 2010.

The company's Form S for sulfuric acid in reporting year 2010 is on the following page:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year

ABC
Facility Name

70709
DEP Facility ID Number

Sulfuric Acid
Chemical Name

Section 1: Facility-Wide Use of Listed Chemical

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

9014-95-7
a. MA DEP CAS #

Sulfuric Acid
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

d. Processed

130,000
e. Otherwise Used

57,143
f. Generated As Byproduct

g. Shipped In Or As Product

h. ☐ Check here to input Form R or A information to MassDEP

i. _____ Production Ratio

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

a. Chemical Was Recycled On Site

22,857
b. Chemical Was Consumed Or Transformed

c. Chemical Was Held In Inventory

d. Chemical Is A Compound

e. Other

f. Did anything non-routine occur at your facility during the reporting year that affected the data reported?

☐ Yes* ☒ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

Section 3: Chemicals Used in Waste Treatment Units

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year

ABC
Facility Name

70709
DEP Facility ID Number

Sulfuric Acid
Chemical Name

a. Is this chemical used to treat waste or control pollution?

☒ Yes ☐ No* *If your answer is No, please skip ahead to Section 4.

b. Please enter the amount of the chemical (in pounds) used to treat waste or control pollution.

50,000
Pounds

Section 3: Chemicals Used in Waste Treatment Units (continued)

c. Did the use of this chemical for waste treatment or pollution control increase or decrease by 10 percent or more compared with the previous reporting year?

c.1 ☐ Yes* ☒ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

c.2 ☐ Yes ☒ No Are there more chemicals to report? (Use ONLY if ALL chemicals are used to treat waste or control pollution.)

Section 4: Toxics Use by Production Unit

1
a. Production Unit #

Use

b. Quantity of Chemical Code:

☐ 1. ≤5,000 lbs. ☐ 2. > 5,000 ≤10,000 lbs. ☒ 3. > 10,000 lbs. ≤100,000 lbs.

☐ 4. > 100,000 lbs. ≤500,000 lbs. ☐ 5. > 500,000 lbs.

c. Did the use of this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to g. below.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
AA-18	I	68		
d.1.	2.	3a.	3b.	3c.
e.1.	2.	3a.	3b.	3c.
f.1.	2.	3a.	3b.	3c.

Byproduct

g. Was byproduct generated for this chemical less than 1 percent of use in this production unit?

☐ Yes* ☒ No *If your answer is Yes, skip ahead to m. on Page 3.

h. Did the byproduct generated for this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to m. on Page 3.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
AA-18	I	68		
i.1.	2.	3a.	3b.	3c.
j.1.	2.	3a.	3b.	3c.
k.1.	2.	3a.	3b.	3c.

l. Are there more production units that use this chemical? ☐ Yes ☐ No

m. You may add any comments or explanations regarding chemical use and/or byproduct generated in this production unit, chemical use in waste treatment (from Section 3), and non-routine occurrences at your facility (from Section 2).

Solution for Problem #1:

Reporting Year: **2010**
Facility Name: **Company ABC**
DEP Facility ID Number: **70709**
Chemical Name: **Sulfuric Acid**

Section 1: Facility wide use of Listed Chemical

1a. **9014-95-7**

1b. **Sulfuric Acid**

1e. **130,000 lbs** **Otherwise Used** **(given)**

1f. **57,143 lbs** **Generated as Byproduct**

(50,000 lbs byproduct 2009/70,000 lbs used in anodizing 2009)*(80,000 lbs used in anodizing 2009) = 57,143 lbs of byproduct 2010

This calculation is based on the statement in the problem that "…all process efficiencies stayed the same in 2009 and 2010…"

Section 2: Materials Balance

2b. **22,860 lbs** **Chemical Was Consumed or Transformed**

80,000 lbs used in anodizing – 57,143 lbs byproduct = 22,857 lbs consumed or transformed

2f. **No**

Section 3: Chemicals Used in Waste Treatment Units

3a. **Yes**
3b. **50,000 lbs (given)**
3c. **No.**

Section 4: Toxics Use by Production Unit

4a. **Production Unit #1**
4b. **3. >10,000 lbs. ≤100,000 lbs.**
4c. **Yes**.

Formula: If:
(previous year's use)*0.9 < (reporting year's use) < (previous year's use)*1.1
Then: the use of the chemical did not change by 10%.

2009 use (70,000 lbs) * 1.1 = 77,000 lbs
2009 use (70,000 lbs) * 0.9 = 63,000 lbs

2010 Use = 80,000 lbs which is a greater than 10% increase.

4d1. **AA-18**
4d2. **I**
4d3a. **68 (Production increased)**

4g. **No.**
4h. **Yes.**

Formula: If:
(previous year's byproduct generation) * 0.9 < (reporting year's byproduct generation) < (previous year's byproduct generation) * 1.1
Then: byproduct generation of the chemical did not change by 10%.

2009 byproduct generation (50,000 lbs) * 1.1 = 55,000 lbs
2009 byproduct generation (50,000 lbs) * 0.9 = 45,000 lbs

2010 byproduct generation = 57,143 lbs which is a greater than 10% increase.

4i1. **AA-18.**
4i2. **I**
4i3. **68 (Production increased)**
4l. **No**

Example #2: Increase in production and TUR implementation

Boards Etc. (Facility ID 9763459) is a contract circuit board assembler. It attaches customer specified components on customer supplied circuit board via wave soldering (process code CC-08) in production unit #1. In reporting year 2009, it used tin-lead solder that contained 3,436 pounds of lead (CAS 7439-92-1), a TURA reportable substance. That same year the company sent solder dross off-site for recycling and received a statement back from its recycler that 1,827 pounds of lead were recovered from the dross. Results of engineering estimates show that 2.5 pounds of lead were released as an air point source and 1,606 pounds of lead were applied to customer circuit boards and shipped with products.

The company's Form S for lead in reporting year 2009 is:

1d.	3,436 lbs	Processed
1f.	1,829.5 lbs	Generated as Byproduct
1g.	1,606 lbs	Shipped in or as product

In reporting year 2010 the company purchased and processed 3,354 pounds of lead in their solder. During that same reporting year it processed 10% more circuit boards than in reporting year 2009 and implemented a dross control program that reduced dross generation and recoverable lead to 1,585 pounds. Engineering estimates indicate 2.7 pounds of lead were released to the air as a point source and that 1,766 pounds of lead were applied to circuit boards.

The company's Form S for lead in reporting year 2010 is on the following page:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year

Boards, etc.
Facility Name

9763459
DEP Facility ID Number

Lead
Chemical Name

Section 1: Facility-Wide Use of Listed Chemical

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

7439-92-1
a. MA DEP CAS #

Lead
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

3,354
d. Processed

e. Otherwise Used

1587.7
f. Generated As Byproduct

1,766
g. Shipped In Or As Product

h. ☐ Check here to input Form R or A information to MassDEP

i. _____ Production Ratio

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

a. Chemical Was Recycled On Site

b. Chemical Was Consumed Or Transformed

c. Chemical Was Held In Inventory

d. Chemical Is A Compound

e. Other

f. Did anything non-routine occur at your facility during the reporting year that affected the data reported?

☐ Yes* ☒ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

Section 3: Chemicals Used in Waste Treatment Units

a. Is this chemical used to treat waste or control pollution?

☐ Yes ☒ No* *If your answer is No, please skip ahead to Section 4.

b. Please enter the amount of the chemical (in pounds) used to treat waste or control pollution.

Pounds

Section 3: Chemicals Used in Waste Treatment Units (continued)

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year
Boards, etc.
Facility Name
9763459
DEP Facility ID Number
Lead
Chemical Name

c. Did the use of this chemical for waste treatment or pollution control increase or decrease by 10 percent or more compared with the previous reporting year?

c.1. ☐ Yes* ☐ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

c.2. ☐ Yes ☐ No Are there more chemicals to report? (Use ONLY if ALL chemicals are used to treat waste or control pollution.)

Section 4: Toxics Use by Production Unit

1
a. Production Unit #

Use

b. Quantity of Chemical Code:

☒ 1. ≤5,000 lbs. ☐ 2. > 5,000 ≤10,000 lbs. ☐ 3. > 10,000 lbs. ≤100,000 lbs.

☐ 4. > 100,000 lbs. ≤500,000 lbs. ☐ 5. > 500,000 lbs.

c. Did the use of this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to g. below.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
CC-08	D	50	68	
d.1.	2.	3a.	3b.	3c.
e.1.	2.	3a.	3b.	3c.
f.1.	2.	3a.	3b.	3c.

Byproduct

g. Was byproduct generated for this chemical less than 1 percent of use in this production unit?

☐ Yes* ☒ No *If your answer is Yes, skip ahead to m. on Page 3.

h. Did the byproduct generated for this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to m. on Page 3.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
CC-08	D	50	68	
i.1.	2.	3a.	3b.	3c.
j.1.	2.	3a.	3b.	3c.
k.1.	2.	3a.	3b.	3c.

l. Are there more production units to report? ☐ Yes ☒ No

m. You may add any comments or explanations regarding chemical use and/or byproduct generated in this production unit, chemical use in waste treatment (from Section 3), and non-routine occurrences at your facility (from Section 2

Please note that lead use and byproduct generation decreased (by 2% and 13%, respectively), while production increased by 10%. We recycle our lead dross off-site.

Solution for Problem #2:

Reporting Year: **2010**
Facility Name: **Boards, etc.**
DEP Facility ID Number: **009-76-3459**
Chemical Name: **Lead**

Section 1: Facility wide use of Listed Chemical

1a. **7439-92-1**

1b. **Lead**

1d. **3,354 lbs** **Processed** **(given)**

1f. **1,587.7 lbs** **Generated as Byproduct**

1,585 lbs (recovered by offsite recycler) + 2.7 lbs released to air as point source = 1587.7 lbs

Note: This assumes that all lead sent to recycler was reclaimed and reported.

1g. **1,766 lbs** **Shipped In or As Product** **(given)**

Section 2: Materials Balance

2f. **No**

Section 3: Chemicals Used in Waste Treatment Units

3a. **No**

Section 4: Toxics Use by Production Unit
4a. **Production Unit #1**
4b. **1. ≤ 5,000 lbs.**
4c. **Yes – Toxics use reduction was implemented.**

Formula: If:
(previous year's use)*0.9 < (reporting year's use) < (previous year's use)*1.1
Then: the use of the chemical did not change by 10%.

2009 use (3,436 lbs) * 1.1 = 3,779.6 lbs
2009 use (3,436 lbs) * 0.9 = 3,092.4 lbs

2010 Use = 3,354 lbs. However, toxics use reduction was implemented in the form of a dross control program.

4d1. **CC-08**
4d2. **D**
4d3a. **50 (Improved Operations and Maintenance), 68 (Production increased)**

4g. **No.**
4h. **Yes. (Toxics use reduction was implemented AND byproduct generation decreased by more than 10%).**

Formula: If:
(previous year's byproduct generation) * 0.9 < (reporting year's byproduct generation) < (previous year's byproduct generation) * 1.1
Then: byproduct generation of the chemical did not change by 10%.

2009 byproduct generation (1,829.5 lbs) * 1.1 = 2,012.5 lbs
2009 byproduct generation (1,829.5 lbs) * 0.9 = 1,646.6 lbs

2010 byproduct generation = 1,587.7 lbs.

4i1. **CC-08.**
4i2. **D**
4i3. **50 (Improved Operations and Maintenance), 68 (Production increased)**
4l. **No.**
4m. **Please note that lead use and byproduct generation decreased (by 2% and 13%, respectively), while production increased by 10%. We recycle our lead dross off-site.**

Example #3 Product reformulation and on-site recycling

The Green Paint Company (Facility ID 745978) prides itself in the manufacture of environmentally friendly paints. It manufactures a line of VOC compliant solvent based paint in production unit #1 for use in metal finishing applications that contain xylene mixed isomers (CAS 1330-20-7). In reporting year 2009 it processed 126,541 pounds of xylene mixed isomers (including reclaimed solvent) and produced 56,237 gallons of metal finishing paint.

In the following reporting year 2010, the company manufactured/compounded (process code GG-01) a reformulated version of the metal finishing paint using a different resin that required the use of approximately 12% less xylene mixed isomers and no additional solvents. The company produced 58,116 gallons of the reformulated metal finishing paint using only 115,376 pounds of xylene mixed isomers. Fugitive emissions of xylene mixed isomers during processing operations were estimated at 1,135 pounds in reporting year 2009 and 1,098 pounds in reporting year 2010. The company has a non-integral on-site recycling solvent still (DD-02) that reclaimed approximately 800 pounds each year of xylene mixed isomers from processing operations. The amount of reclaimed xylene is included in the total facility-wide usage numbers stated above. The company shipped off-site 2 drums of hazardous waste in each year that it estimated contained a total of 250 pounds of xylene mixed isomers in reporting year 2009 and 225 pounds in reporting year 2010.

The company's Form S for xylene mixed isomers in reporting year 2009 is:

1d.	126,541 lbs	Processed
1f.	2,185 lbs	Generated as Byproduct
1g	125,156 lbs	Shipped in or as product
2a.	800 lbs	Chemical was recycled on site

The company's Form S for xylene mixed isomers in reporting year 2010 is on the following page:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year

Green Paint Company
Facility Name

745978
DEP Facility ID Number

Xylene (mixed isomers)
Chemical Name

Section 1: Facility-Wide Use of Listed Chemical

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

1330-20-7
a. MA DEP CAS #

Xylene (mixed isomers)
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

115,376
d. Processed

e. Otherwise Used

2,123
f. Generated As Byproduct

114,053
g. Shipped In Or As Product

h. ☐ Check here to input Form R or A information to MassDEP

i. _____ Production Ratio

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

800
a. Chemical Was Recycled On Site

b. Chemical Was Consumed Or Transformed

c. Chemical Was Held In Inventory

d. Chemical Is A Compound

e. Other

f. Did anything non-routine occur at your facility during the reporting year that affected the data reported?

☐ Yes* ☒ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

Section 3: Chemicals Used in Waste Treatment Units

a. Is this chemical used to treat waste or control pollution?

☐ Yes ☒ No* *If your answer is No, please skip ahead to Section 4.

b. Please enter the amount of the chemical (in pounds) used to treat waste or control pollution.

Pounds

Section 3: Chemicals Used in Waste Treatment Units (continued)

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year
Green Paint Company
Facility Name
745978
DEP Facility ID Number
Xylene (mixed isomers)
Chemical Name

c. Did the use of this chemical for waste treatment or pollution control increase or decrease by 10 percent or more compared with the previous reporting year?

c.1 ☐ Yes* ☐ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

c.2 ☐ Yes ☐ No Are there more chemicals to report? (Use ONLY if ALL chemicals are used to treat waste or control pollution.)

Section 4: Toxics Use by Production Unit

1
a. Production Unit #

Use

b. Quantity of Chemical Code:

☐ 1. ≤5,000 lbs. ☐ 2. > 5,000 ≤10,000 lbs. ☐ 3. > 10,000 lbs. ≤100,000 lbs.

☒ 4. > 100,000 lbs. ≤500,000 lbs. ☐ 5. > 500,000 lbs.

c. Did the use of this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to g. below.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
GG-01	D	20		
d.1.	2.	3a.	3b.	3c.
e.1.	2.	3a.	3b.	3c.
f.1.	2.	3a.	3b.	3c.

Byproduct

g. Was byproduct generated for this chemical less than 1 percent of use in this production unit?

☐ Yes* ☒ No *If your answer is Yes, skip ahead to m. on Page 3.

h. Did the byproduct generated for this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to m. on Page 3.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
GG-01	D	20		
i.1.	2.	3a.	3b.	3c.
j.1.	2.	3a.	3b.	3c.
k.1.	2.	3a.	3b.	3c.

l. Are there more production units that use this chemical? ☐ Yes ☒ No

m. You may add any comments or explanations regarding chemical use and/or byproduct generated in this production unit, chemical use in waste treatment (from Section 3), and non-routine occurrences at your facility (from Section 2).

The use and byproduct generation of xylene (mixed isomers) decreased even with an increase in business. We reformulated our metal finishing line of paint that requires the use of approximately 12% less xylene per gallon of paint produced.

Solution for Problem #3:

Reporting Year: **2010**
Facility Name: **Green Paint Company**
DEP Facility ID Number: **745978**
Chemical Name: **Xylene mixed isomers**

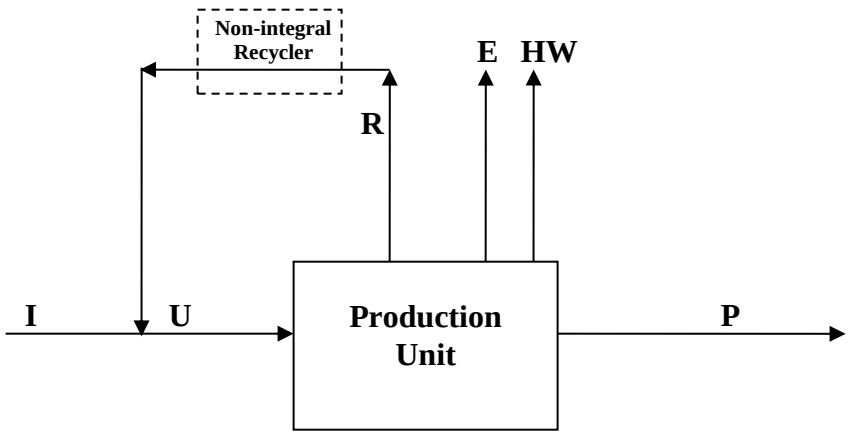
Section 1: Facility wide use of Listed Chemical

1a. **1330-20-7**

1b. **Xylene mixed isomers**

1d. **115,376 lbs** **Processed** **(given)**

1f. **2,123 lbs** **Generated as Byproduct**



I = Initial input = 115,376 lbs used – 800 lbs recycled = 114,576 lbs. It states in the problem that "The amount of reclaimed xylene is included in the total facility-wide usage numbers stated above" – therefore, the amount of nonrecycled xylene must be less than that used.

U = Used at facility = 115,376 lbs (given in problem)

P = Amount shipped in product = 115,376 lbs used (U) – 1,098 lbs fugitive emissions(E) – 225 lbs hazardous waste (HW) = 114,043 lbs

HW = Hazardous Waste = 225 lbs disposed of in drums

E = Fugitive emissions = 1,098 lbs

R = Non-integrally recycled xylene = 800 lbs

Total byproduct = 800 lbs (recovered by non-integral onsite recycling) + 1,098 lbs released as fugitive emissions + 225 lbs hazardous waste = 2,123 lbs

1g. **114,053 lbs** **Shipped In or As Product**

115,376 lbs used (includes recycled xylene as stated in problem) – 1,098 lbs fugitive emissions – 225 lbs hazardous waste = 114,053 lbs.

Section 2: Materials Balance

2a. **800 lbs** **Chemical Was Recycled Onsite**

2f. **No**

Section 3: Chemicals Used in Waste Treatment Units

3a. **No**

Section 4: Toxics Use by Production Unit

4a. Production Unit **#1**
4b. **4. > 100,000 lbs. ≤ 500,000 lbs.**
4c. **Yes – Toxics use reduction was implemented.**

Formula: If:
(previous year's use)*0.9 < (reporting year's use) < (previous year's use)*1.1
Then: the use of the chemical did not change by 10%.

2009 use (126,541 lbs) * 1.1 = 139,195 lbs
2009 use (126,541 lbs) * 0.9 = 113,887 lbs

2010Use = 115,376 lbs. However, toxics use reduction was implemented through product reformulation.

4d1. **GG-01**
4d2. **D**
4d3a. **20 (Product reformulation)**

4g. **No.**
4h. **Yes – Toxics use reduction was implemented.**

Formula: If:
(previous year's byproduct generation) * 0.9 < (reporting year's byproduct generation) < (previous year's byproduct generation) * 1.1
Then: byproduct generation of the chemical did not change by 10%.

2009 byproduct generation (2,185 lbs) * 1.1 = 2404 lbs
2009 byproduct generation (2,185 lbs) * 0.9 = 1967 lbs

2010byproduct generation = 2,123 lbs. However, toxics use reduction was implemented.

4i1. **GG-01.**
4i2. **D**
4i3. **20 (Product reformulation)**
4l. **No.**
4m. **The use and byproduct generation of xylene mixed isomers decreased even with an increase in business. We reformulated our metal finishing line of paint that requires the use of approximately 12% less xylene per gallon of paint produced.**

Example #4 Web coating improved cleaning operation with chemical substitution

Web Coating PST Company (Facility ID 996492) offers an array of solvent-based coating services and products. The company uses a thermal oxidizer to destroy the half-dozen different VOCs the company uses to apply adhesives (process code AA-03) and apply other solvent based coatings (process code AA-03). In reporting year 2009 the facility-wide usage of methyl ethyl ketone (MEK - CAS 78-93-3) was 226,541 pounds. It used 125,789 pounds of MEK in an adhesive (production unit #3) applied to 1.2 million square yards of product and the remaining 100,752 pounds of MEK in facility-wide equipment clean up (process code FF-01) operations (production unit #9).

The company's Form S for methyl ethyl ketone in reporting year 2009 is:

1e.	226,541 lbs	Otherwise Use
1f.	226,541 lbs	Byproduct

In reporting year 2010 the company implemented a number of changes to its equipment clean-up operations. It began substituting a non-reportable terpene-based alternative for clean-up of several different coatings. It adjusted the dams in the coater reservoir (process code AA-03) to decrease the amount of adhesive leaking past the dam, reducing clean-up needed. It also provided worker training on using mechanical scraping and wiping prior to solvent application in roller and equipment clean-up. The company will be evaluating the installation of a centralized cleaning unit and the possibility of on-site solvent recycling in reporting year2010.

In reporting year 2010 the company used 123,642 pounds of MEK in production unit #3 and produced 1.16 million yards of product. It used only 61,267 pounds of MEK in clean-up operations, even though they produced a comparable amount of product facility-wide as in reporting year 2009. The most significant reductions of MEK in clean-up operations (production unit #9) in order of descending importance are: the use of a terpene cleaner alternative, dam adjustment, worker training, and better use of mechanical scrapers.

The company's Form S for methyl ethyl ketone in reporting year 2010 is on the following page:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year

Web Coating PST Company
Facility Name

996492
DEP Facility ID Number

Methyl Ethyl Ketone
Chemical Name

Section 1: Facility-Wide Use of Listed Chemical

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

78-93-3
a. MA DEP CAS #

Methyl Ethyl Ketone
b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured: 184,909

d. Processed: 184,909

e. Otherwise Used:

f. Generated As Byproduct:

g. Shipped In Or As Product:

h. ☐ Check here to input Form R or A information to MassDEP

i. _____ Production Ratio

Section 2: Materials Balance

When the amounts reported in c, d and e in Section 1 are added together, the sum will in many cases equal the sum of f and g. In other words, lines c, d and e will often form a "materials balance." If lines c, d and e are not in approximate balance, you must use this section to explain why. Indicate all the reasons that apply by entering the number of pounds on the appropriate line below (e.g., 4,000 Chemical was held in inventory).

a. Chemical Was Recycled On Site:

b. Chemical Was Consumed Or Transformed:

c. Chemical Was Held In Inventory:

d. Chemical Is A Compound:

e. Other:

f. Did anything non-routine occur at your facility during the reporting year that affected the data reported?

☐ Yes* ☒ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

Section 3: Chemicals Used in Waste Treatment Units

a. Is this chemical used to treat waste or control pollution?

☐ Yes ☒ No* *If your answer is No, please skip ahead to Section 4.

b. Please enter the amount of the chemical (in pounds) used to treat waste or control pollution.

Pounds

Section 3: Chemicals Used in Waste Treatment Units (continued)

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Toxics Use Report - Form S

Chemical Use Facility-Wide and by Production Units

2010
Reporting Year
Web Coating PST Company
Facility Name
996492
DEP Facility ID Number
Methyl Ethyl Ketone
Chemical Name

c. Did the use of this chemical for waste treatment or pollution control increase or decrease by 10 percent or more compared with the previous reporting year?

c.1. ☐ Yes* ☐ No *If your answer is Yes, you may explain in Section 4.m. on Page 3.

c.2. ☐ Yes ☐ No Are there more chemicals to report? (Use ONLY if ALL chemicals are used to treat waste or control pollution.)

Section 4: Toxics Use by Production Unit

003
a. Production Unit #

Use

b. Quantity of Chemical Code:

☐ 1. ≤5,000 lbs. ☐ 2. > 5,000 ≤10,000 lbs. ☐ 3. > 10,000 lbs. ≤100,000 lbs.

☒ 4. > 100,000 lbs. ≤500,000 lbs. ☐ 5. > 500,000 lbs.

c. Did the use of this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☐ Yes ☒ No* *If your answer is No, skip ahead to g. below.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
d.1.	2.	3a.	3b.	3c.
e.1.	2.	3a.	3b.	3c.
f.1.	2.	3a.	3b.	3c.

Byproduct

g. Was byproduct generated for this chemical less than 1 percent of use in this production unit?

☐ Yes* ☒ No *If your answer is Yes, skip ahead to m. on Page 3.

h. Did the byproduct generated for this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☐ Yes ☒ No* *If your answer is No, skip ahead to m. on Page 3.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
i.1.	2.	3a.	3b.	3c.
j.1.	2.	3a.	3b.	3c.
k.1.	2.	3a.	3b.	3c.

l. Are there more production units that use this chemical? ☒ Yes ☐ No

m. You may add any comments or explanations regarding chemical use and/or byproduct generated in this production unit, chemical use in waste treatment (from Section 3), and non-routine occurrences at your facility (from Section 2).

Section 4: Toxics Use by Production Unit (continued)

009
a. Production Unit #

Use

b. Quantity of Chemical Code:

☐ 1. ≤5,000 lbs. ☐ 2. > 5,000 ≤10,000 lbs. ☒ 3. > 10,000 lbs. ≤100,000 lbs.

☐ 4. > 100,000 lbs. ≤500,000 lbs. ☐ 5. > 500,000 lbs.

c. Did the use of this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to g. below.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
FF-01	D	10	50	
d.1.	2.	3a.	3b.	3c.
AA-03	D	50		
e.1.	2.	3a.	3b.	3c.
f.1.	2.	3a.	3b.	3c.

Byproduct

g. Was byproduct generated for this chemical less than 1 percent of use in this production unit?

☐ Yes* ☒ No *If your answer is Yes, skip ahead to m. on Page 3.

h. Did the byproduct generated for this chemical in this production unit increase or decrease by 10 percent or more compared with the previous reporting year and/or did you implement toxics use reduction?

☒ Yes ☐ No* *If your answer is No, skip ahead to m. on Page 3.

Process code(s) where most significant changes occurred (up to three in descending order)	Type of Change (Enter "I" for Increase, "D" for Decrease)	Technique Code(s) (up to three per process code)		
FF-01	D	10	50	
i.1.	2.	3a.	3b.	3c.
AA-03	D	50		
j.1.	2.	3a.	3b.	3c.
k.1.	2.	3a.	3b.	3c.

l. Are there more production units that use this chemical? ☐ Yes ☒ No

m. You may add any comments or explanations regarding chemical use and/or byproduct generated in this production unit, chemical use in waste treatment (from Section 3), and non-routine occurrences at your facility (from Section 2).

We substituted a less toxic terpene for MEK in cleanup operations. We also made adjustments to operating equipment resulting in less equipment requiring adhesive removal in clean-up operations.

Solution for Problem #4:

Reporting Year: **2010**
Facility Name: **Web Coating PST Company**
DEP Facility ID Number: **996492**
Chemical Name: **Methyl Ethyl Ketone (MEK)**

Section 1: Facility wide use of Listed Chemical

1a. **78-93-3**

1b. **Methyl Ethyl Ketone (MEK)**

1e. **184,909 lbs** **Otherwise Used**
Total use = Amount used in P.U. #3 (123,642 lbs) + Amount used in P.U. #9 (61,267 lbs) = 184,909 lbs

1f. **184,909 lbs** **Generated as Byproduct**
(Assumes all solvent evaporates from product)

Section 2: Materials Balance

2f. **No**

Section 3: Chemicals Used in Waste Treatment Units

3a. **No**

Section 4: Toxics Use by Production Unit – Production Unit #3

4a. **Production Unit #3**
4b. **4. > 100,000 lbs. ≤ 500,000 lbs.**
4c. **No.**

Formula: If:
(previous year's use)*0.9 < (reporting year's use) < (previous year's use)*1.1
Then: the use of the chemical did not change by 10%.

2009 use (125,789 lbs) * 1.1 = 138,368 lbs
2009 use (125,789 lbs) * 0.9 = 113,210 lbs

2010 Use = 123,642 lbs. No toxics use reduction was implemented for this production unit.

4g. **No.**
4h. **No.**

Formula: If:
(previous year's byproduct generation) * 0.9 < (reporting year's byproduct generation) < (previous year's byproduct generation) * 1.1
Then: byproduct generation of the chemical did not change by 10%.

2009 byproduct generation (125,789 lbs) * 1.1 = 138,368 lbs
2009 byproduct generation (125,789 lbs) * 0.9 = 113,210 lbs

2010 byproduct generation = 123,642 lbs. No toxics use reduction was implemented for this production unit.

4l. **Yes.**

Section 4: Toxics Use by Production Unit – Production Unit #9

4a. **Production Unit #9**
4b. **3. > 10,000 lbs. ≤ 100,000 lbs.**
4c. **Yes.**

Formula: If:
(previous year's use)*0.9 < (reporting year's use) < (previous year's use)*1.1
Then: the use of the chemical did not change by 10%.

2009 use (100,752 lbs) * 1.1 = 110,827 lbs
2009use (100,752 lbs) * 0.9 = 90,677 lbs

2010 Use = 61,267 lbs.

4d1. **FF-01.**
4d2. **D**
4d3a. **10**
4d3b. **50**
4e1. **AA-03**
4e2. **D**
4e3a. **50**
4g. **No.**
4h. **Yes.**

Formula: If:
(previous year's byproduct generation) * 0.9 < (reporting year's byproduct generation) < (previous year's byproduct generation) * 1.1
Then: byproduct generation of the chemical did not change by 10%.

2009byproduct generation (100,752 lbs) * 1.1 = 110,827 lbs
2009 byproduct generation (100,752 lbs) * 0.9 = 90,677 lbs

2010 byproduct generation = 61,267 lbs.

4i1. **FF-01.**
4i2. **D**
4i3a. **10**
4i3b. **50**
4j1. **AA-03**
4j2. **D**
4j3a. **50**
4l. **No.**
4m. **We substituted a less toxic terpene for MEK in clean-up operations. We also made adjustments to operating equipment resulting in less equipment requiring adhesive removal in clean-up operations.**

Appendix D: Common Reporting Errors

1. The toxics use report is missing forms.

A complete toxics use report includes the following:

- ✓ Form S Cover Sheet
- ✓ Form S for each chemical
- ✓ Form R for each chemical (or Form A, if applicable)
- ✓ Fee worksheet

Incomplete TURA reporting may result in late fees, enforcement and fines. **Each facility must file one Form S cover sheet for the facility as a whole. For each chemical reported, a Form R and Form S must be completed.** For ease of review, please place the Form R on top of the Form S for each chemical reported

2. Total chemical use as reported in Sections 1 c, d, and e of the Form S is not equal to the sum of the amounts generated as byproduct (Section 1 f) and shipped in product (Section 1 g).

Section of the report that may need correcting: FORM S: Section 1: Facility-wide Use of Chemical

Generally, there is a materials balance between chemical inputs and outputs on a facility-wide basis:

manufactured + processed + otherwise used = byproduct + shipped in product

If this is not the case on all of your forms, you should have checked one of the explanations (i.e., chemical was recycled on-site) in Section 2 on the Form. Otherwise, your materials accounting for the chemical may need to be checked.

3. The amount reported as byproduct on the Form S is *less than* the quantities reported in Section 8 (Source Reduction and Recycling Activities) of the Form R.

Sections of the report that may need correcting: FORM S: Section 1, item f: Facility-Wide byproduct generated and/or FORM R: Sections 5 and 6.

Byproduct will usually be equal to, or exceed, transfers and releases, since byproduct is the total quantity of waste that is generated during the production process calculated **before** it has been treated. The only time byproduct is less than transfers and releases is when some byproduct is reported as product on the Form S.

4. The amount reported as byproduct on the Form S is *greater than* the quantities reported in Section 8 (Source Reduction and Recycling Activities) of the Form R when there is no on-site energy recovery, recycling, or destructive treatment.

Sections of the report that may need correcting: FORM S: Sections 1 item f: Facility-Wide byproduct generated, Section 2: Materials Balance and/or FORM R: Section 7.

Byproduct is the total quantity of waste that is generated during the production process, calculated **before** it has been treated. If a treatment system destroys some or all of the byproducts, or some of the byproducts are recycled, the reported byproducts will be greater than releases and transfers off-site. If there is no destructive treatment (including energy recovery), on-site recycling, or byproduct reported as product, then total byproduct on the Form S will be equal to Section 8 of the Form R.

5. The production ratio in Section 1.i of the Form S is reported as <0.2 or >10.

This is the same production ratio that is reported on the Form R. It is the current year production amount in those production units in which the chemical is used, divided by the previous year's production level. *Note: The production ratio should never be a negative number. If the production level decreased from the previous year, the production ratio should be a decimal number less than one (e.g., 0.80 means that the production level in the reporting year was 80% of the production in the previous year). If the production level has increased from the previous year, the production ratio should be a decimal number greater than one (e.g., 1.2 means that the production level in the reporting year was 20% greater than the production level in the previous year).*

6. A facility does not meet the requirements for filing a State Only Form A

A facility may only use a Form A, IF the total of the amount treated, recycled, disposed, released, used for energy recovery onsite and offsite IS LESS THAN 500 pounds. These volumes correspond to the sum of amounts reportable for data elements in Section 8, the summary of the report: Section 8.1 (quantity released), Section 8.2 (quantity used for energy recovery onsite), Section 8.3 (quantity used for energy recovery off-site), Section 8.4 (quantity recycled onsite), Section 8.5 (quantity recycled off-site), section 8.6 (quantity treated onsite), and Section 8.7 (quantity treated off-site). If more than a total of 500 pounds is reported in Section 8, the facility must report a State Only Form R. If a facility does not meet these requirements and uses a Form A, then MassDEP may follow up with an enforcement action**.**

Appendix E: Questions and Answers

GENERAL REPORTING QUESTIONS

1. What happens if we reported last year but are exempt this year?

If your facility does not have to report this year but reported in a previous year, MassDEP recommends that you notify MassDEP in writing and explain why. This will help MassDEP distinguish facilities that are exempt from those that are out of compliance. The Form S Cover Sheet has a section that you may complete if your facility is newly exempt from reporting You also may send a letter to MassDEP.

2. When should a plan summary be submitted?

Facilities must prepare or update their Plans in even-numbered calendar years only. A plan summary, resource conservation summary, or EMS progress report must be submitted to MassDEP by July 1st of the even-numbered year.

3. How can I file a trade secret claim?

If you are making a trade secret claim in your toxics use report, please call MassDEP's TURA Program at 617-292-5711 to request the "Trade Secret Special Instructions".

WASTE TREATMENT CHEMICALS

4. If I claim my whole facility as a production unit, can I include my waste treatment system as part of my production unit?

No. Waste treatment units are not considered manufacturing processes and therefore cannot be included in production units. Companies should track chemicals used in waste treatment units separately from those used in production units. Companies should report chemical use associated with waste treatment operations in Section 3 of the Form S, Chemicals Used in Waste Treatment Units.

5. What if my waste treatment unit is "hard-piped" or "integral" to my production process, can I then consider it part of my production unit?

No. Waste treatment units are not considered production processes even if they are "integral" to the manufacturing process. Chemicals used in them are reported separately from production units.

6. If I previously reported my waste treatment unit as part of my production unit, what should I do to correct my reporting?

You should consider all waste streams previously treated by your waste treatment unit as byproducts from production units in your facility. These byproducts should be allocated back to the production unit where they were generated. Chemicals used to perform the waste treatment operations (for example, acids and bases used for pH adjustment) can be reported separately in Section 3 of the Form S.

7. When I dump my spent acid process bath, I use it in my waste treatment, as is, without further treatment. Can I report this as byproduct as product?

No. Byproduct as product that is used on site must be used in a manufacturing process to be considered byproduct as product. Amounts of spent acid and base baths that are used to adjust pH in waste treatment operations can be used to reduce facility-wide use of the reportable chemicals. They are still considered byproducts when they leave the production unit.

TUR PLANNER CERTIFICATION

8. How do I obtain an application for certification or recertification as a TUR Planner?

Please call 617-292-5541 for a "Planner Certification Application" or "Planner Recertification Application," depending upon your situation. You also can download the application from MassDEP's web site at www.mass.gov/dep/toxics/approvals/turforms.htm#cert

9. Once I receive the TUR Planner application, if I have questions concerning filling it out, can someone assist me?

Yes. Please call the MassDEP Planner Certification Program at 617-292-5541.

10. Can a planner receive credit for applicable courses taken outside the TURI and OTA curriculum?

Yes, as long as the courses fit the regulatory requirements found in 310 CMR 50.58. Courses offered by either OTA or TURI are usually pre-approved by MassDEP for use by TUR Planners seeking recertification credit. However, Planners do not receive credit by simply attending the pre-approved course; they must apply to MassDEP using the TUR Planner Continuing Education Credit Pre-approval Form to receive the credit.

Any organization wishing to offer courses pre-approved for credit for TUR Planners may contact the MassDEP Planner Program at 617-292-5541 for more information. MassDEP normally requests some tangible information (e.g., a syllabus, course description and length of time) prior to pre-approving a course for Planner credit. Once again, each Planner attending a pre-approved course and seminar must apply to MassDEP in order to receive the credit.

11. How do I find out what courses TURI is offering or planning to offer which are suitable for credit toward recertification?

Information on courses offered by TURI is available on the TURI web site at www.turi.org.

12. Once I take a course approved by MassDEP for TUR Planner credits, do I still need to apply to MassDEP for credit?

Yes. MassDEP may give a course instructor permission to state that his or her course has been approved by MassDEP for use by TUR Planners for recertification credit. However, in order to receive the credit you must apply to MassDEP. You may wait until you have all the required credits or you may use the TUR Planner Continuing Education Credit Pre-approval Form to receive credit immediately.

13. Is there a rollover of recertification credits into the next 2-year period allowed for those TUR Planners who have accumulated more than the required credits in any given certification and recertification period?

Generally no, since allowing a rollover of extra credits into the next recertification period would defeat the basic purpose of recertification, which is to keep TUR Planners up-to-date on current TUR planning techniques. However, exceptions may be made in certain situations. For example, an exception could be made for obtaining extra credits by taking a relevant TUR course during the end of a TUR Planner's certification or recertification period. In this case, some of the surplus credits could possibly be used toward the next recertification period.

14. What are the new TUR Planner requirements for certifying Resource Conservation (RC) Plans and Environmental Management Systems (EMS)?

The requirements can be found on MassDEP's web page.
http://www.mass.gov/eea/agencies/massdep/toxics/tur/toxics-use-reduction-act-tura-planning-requirements.html

15. **Do TUR Planners need additional credits to sign RC Plans and EMS plans**?

No, any RC and EMS credits obtained count toward the total number of credits required for recertification.

16. **When are TUR Planner examinations held?**

There are no set dates for TUR Planner examinations. MassDEP generally offers the examination once each year during late fall (usually in November), after TURI's planner course has been completed. All eligible TUR Planners are notified by mail. Everyone who has taken the TURI planner course since the last planner examination is notified by MassDEP of the upcoming examination. In addition, all examinees who have failed the examination in the past are notified by MassDEP. TURI also announces the pending examination in its planner classes.

17. Is there a professional organization for TUR Planners?

Yes. The Toxics Use Reduction Planning Association (TURPA) was formed in 1994. About three quarters of the members are from manufacturing facilities, some are consultants, and some belong to state agencies. For more information about TURPA, visit their web siteat: www.turpa.org .

Appendix F: Chemicals that Have Been Delisted Under TURA

The following chemicals have been delisted from TURA (but in certain cases are reportable under EPCRA):

Reporting Year/Chemical Delisted	Reason/Note
1994	
Barium Sulfate	EPCRA delisting and not CERCLA reportable
All copper phthalocyanine compounds that are substituted with only hydrogen and/or chlorine and/or bromine (delisted from the copper compounds category)	EPCRA delisting and not CERCLA reportable
High molecular weight glycol ethers	EPCRA delisting and not CERCLA reportable
1995	
Certain Metal Alloys (refer to Appendix B, Guidance for TURA Reporting and Planning for Certain Metals and Metal Alloys)	TURA Administrative Council delisting
Chromium (III) Oxide from chromium compounds category	TURA Administrative Council delisting
Ammonium Sulfate Solution (CAS#7783-20-2)	EPCRA delisting and not CERCLA reportable
Ammonium Nitrate Solution (CAS#6484-52-2)	EPCRA delisting and not CERCLA reportable
1996	
Hydroquinone (except for the manufacture of the chemical)	TURA Administrative Council delisting
Acetic Acid at concentrations of 12% or less	TURA Administrative Council delisting
Di-(2-ethylhexyDadipate (DEHA) (CAS#103-23-1)	EPCRA delisting and not CERCLA reportable

1997	
Zinc Oxide from zinc compounds category	TURA Administrative Council delisting
Radionuclides	TURA Administrative Council delisting
2-bromo-2-nitropropane (Bronopol) (CAS#52-51-7)	EPCRA delisting and not CERCLA reportable
2, 6 dimethylphenol (CAS# 576-26-1)	EPCRA delisting and not CERCLA reportable
Carbamate waste category	CERCLA delisting and not EPCRA reportable
1998	
Silver-Copper Alloy	TURA Administrative Council delisting
1999	
Pure Copper and Pure Silver	TURA Administrative Council delisting
Caprolactum (CAS# 105602)	CERCLA delisting and not EPCRA reportable
2000	
Zinc Stearate from zinc compounds category	TURA Administrative Council delisting
2010	
Adipic Acid	TURA Administrative Council delisting
Ammonium Bicarbonate	TURA Administrative Council delisting
Ammonium Chloride	TURA Administrative Council delisting
Ammonium Sulfamate	TURA Administrative Council delisting
Amyl Acetate	TURA Administrative Council delisting
Fumaric Acid	TURA Administrative Council delisting
Maleic Acid	TURA Administrative Council delisting

Appendix G: Integral Recycling Guidance Under The Toxics Use Reduction Act

Introduction

The Toxics Use Reduction Act (TURA) identifies six (6) techniques which constitute toxics use reduction. The sixth technique is "recycling, reuse or extended use of toxics by using equipment or methods which become an integral part of the production unit of concern, including but not limited to filtration and other closed loop methods." TURA also states, in part, that "toxics use reduction shall not include... off-site or out-of-production unit waste recycling." This guidance provides detail on what types of activities are considered "integral recycling" under TURA.

This Appendix also provides general guidance on how each activity is regulated under MassDEP's hazardous waste regulations (310 CMR 30.000). The reader must refer to the specific hazardous waste regulations, separate from this TURA guidance, to assure operational compliance with hazardous waste requirements. Critical terms such as "integral," "production process," "closed loop," "totally enclosed," and others are used differently under different statutes. As such, people must be careful to consider differing requirements to avoid non-compliance problems. Companies should check the regulations themselves or contact MassDEP at 617-292-5711 for further compliance assistance, if needed.

Should this integral recycling guidance result in significant reductions in your facility-wide use or byproduct figures, please contact MassDEP at 617-292-5711. Such significant changes in reporting can skew TURA trend data analysis and your notification to MassDEP will allow us to adjust our figures to prevent over counting of actual reductions.

DEFINITION

Activities Considered "Integral Recycling" Under This Guidance

- In order for an activity to qualify as "integral recycling" the material must be recycled or reused, not treated. From the TURA perspective, this is important because the statutory language refers to "recycling, reuse or extended use of toxics..." and also because the statutory definition of toxics use reduction specifically excludes anything that is, or that promotes "end-of-pipe treatment."

  If the recycling equipment and piping are permanently connected to a single production unit, the operation is integral. Also, if the recycling equipment is connected via detachable* hoses to a single production unit, the operation is integral.

- Detachable*, portable recycling equipment, directly connected to the production unit while the recycling equipment is in operation, is considered integral. There must be a sealed connection while the unit is in operation.

- If a manufacturing process includes a directly connected holding tank as part of its production unit, and the recycling unit is directly connected to the tank, this qualifies as integral recycling under this policy.

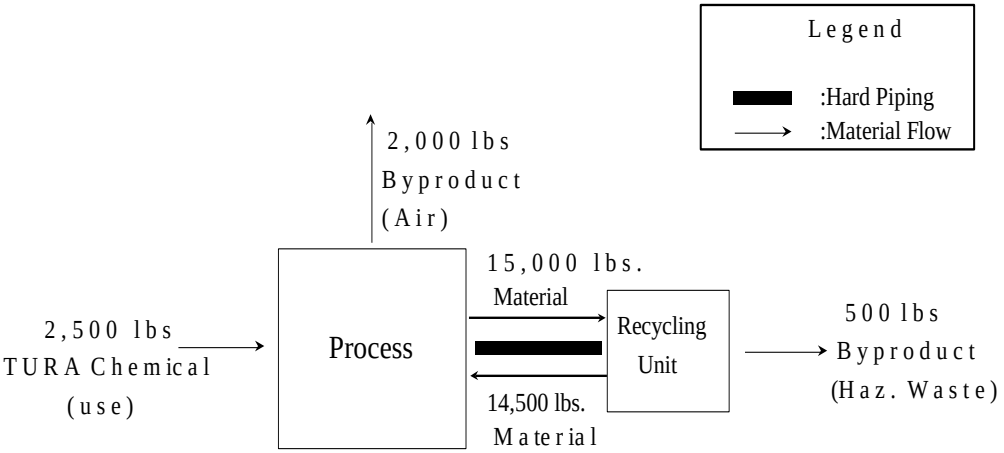
* Whenever detachable pipes are used in conjunction with a recycling unit, a written spill prevention plan must be prepared and kept on file to minimize worker exposure and to prevent spills and leaks when connecting, disconnecting, and operating the recycling unit. This spill prevention plan minimizes any increased risk of worker exposures that may arise from this expanded definition of integral recycling under TURA. TURA filers who do not wish to prepare and keep on file this spill contingency plan should consider the recycling unit (connected via detachable hoses) non-integral under TURA and report accordingly.

INTEGRAL RECYCLING EXAMPLES

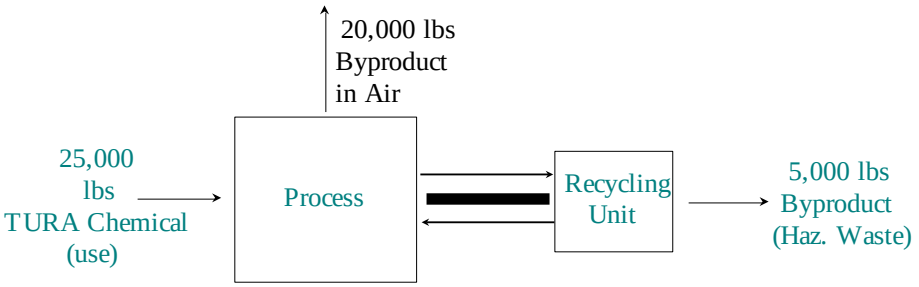
✓Example: 1

A recycling unit which is hard-piped in the process qualifies as integral. The recycling unit is totally enclosed during operation. (Totally enclosed recycling units are units that have been designed, constructed, and operated to prevent spills, leaks or emissions of hazardous materials to the workplace and environment.)

A. This diagram illustrates the materials accounting and quantities generated each time the reportable chemical is an input to this process. (For this example, it occurs ten times each year.)



B. This diagram shows quantities reported annually for this chemical which are integrally recycled in this process.



Description of example process: As shown in diagram A, ten times a year 2,500 lbs of virgin chemical is fed into the process to supplement the 14,500 lbs of integrally recycled chemical which is reintroduced to the process on the same schedule. While parts are being processed using each of ten batches of chemical, 2,000 lbs of byproduct is released into the air. When each batch of chemical is spent, it is pumped through the integrally connected recycling unit which produces 500 lbs of byproduct as hazardous waste per batch. The quantities in diagram B show the yearly amounts of byproduct produced and material processed. Because the unit is integrally connected the chemical recycled is not reported as an input to the process, and spent chemical piped to the recycling unit is not considered byproduct. If any of the recycled solvent can not be used in the process, and is shipped off-site for reuse without any treatment or recovery, it would be considered byproduct as product and reported in Section 1 item g. of the Form S "Shipped in or as Product." (See section on Byproduct as Product, p.G-6.)

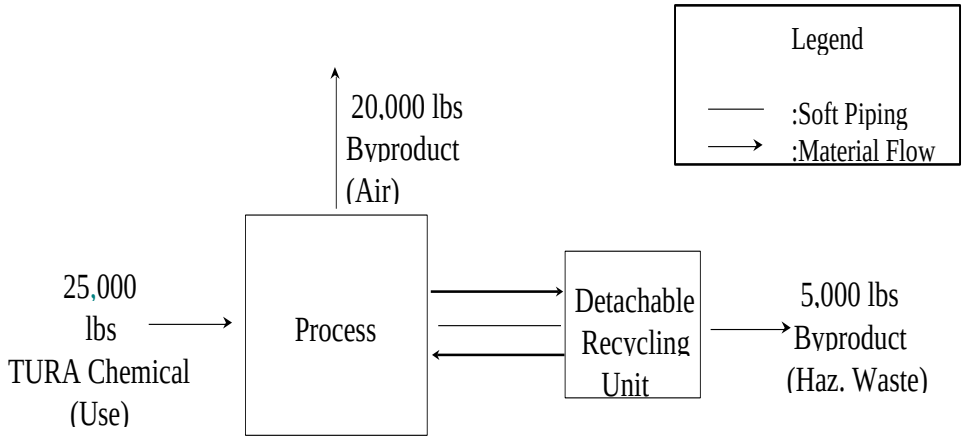
For this example of Integral Recycling, the Form S, Section 1 would be filled out as follows:

c. Manufactured: 0 d. Processed: 0
e. Otherwise Used: **25,000** f. Generated as Byproduct: **25,000**
g. Shipped in or as Product: 0*

** If any integrally recycled material is shipped as product (byproduct as product), item g. would reflect that quantity.*

✓Example: 2

To qualify as integral recycling, the portable recycling unit must be connected while the recycling unit is in operation via detachable couplings that are appropriate for such use and perform similarly to hard piping. The recycling unit is totally enclosed during operation. A written spill prevention plan must be developed to minimize risk of worker exposure and to prevent spills or leaks when connecting and disconnecting or operating the recycling equipment.



Description of example process: The quantities in the diagram show the yearly amounts of byproduct produced and material processed. Because the unit is integrally connected, the recycled chemical is not reported as an input to the process, and spent chemical piped to the recycling unit is not considered byproduct. If any of the recycled solvent can not be used in the process, and is shipped off-site for reuse without any treatment or recovery, it would be considered byproduct as product and reported in section 1.2g of the Form S "Shipped in or as Product." (See section on Byproduct as Product, p.G-6.)

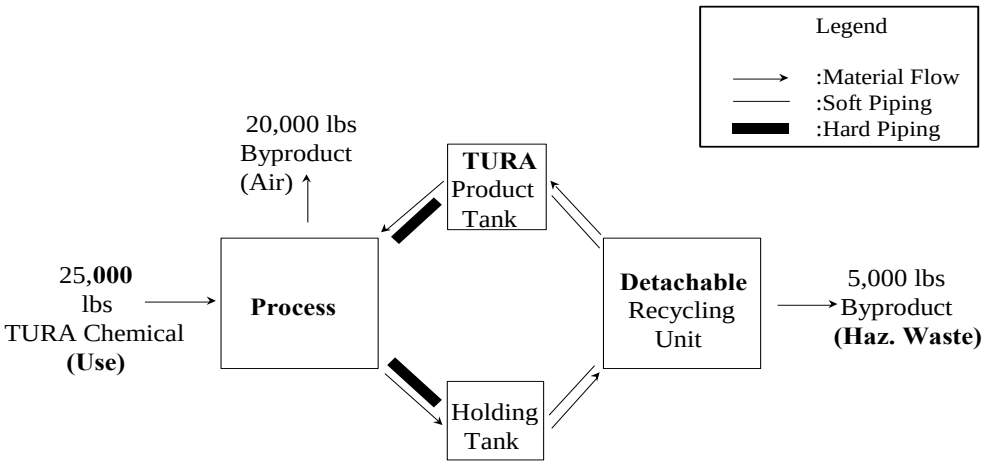
For this example of Integral Recycling, the Form S Section 1 would be filled out as follows:

c. Manufactured: 0 d. Processed: 0
e. Otherwise Used: **25,000** f. Generated as Byproduct: **25,000**
g. Shipped in or as Product: 0*

** If any integrally recycled material is shipped as product (byproduct as product), item g. would reflect that quantity.*

✓Example: 3

A recycling process which utilizes a holding tank, piped to the process, to store spent chemicals which are then recycled via either a permanent or detachable recycling unit, qualifies as integral. The recycling unit must be connected to the holding tank while the unit is in operation. The unit must also be totally enclosed while in operation (as explained in example 1, p.G-2). A written spill prevention plan must be developed to minimize risk of worker exposure, to prevent spills or leaks when connecting and disconnecting or operating the recycling equipment.



Description of sample process: The quantities in the diagram show the yearly amounts of byproduct produced and material processed. Because the unit is integrally connected, the recycled chemical is not reported as an input to the process and spent chemical piped to the recycling unit, is not considered byproduct. If any of the recycled solvent can not be used in the process, and is shipped off-site for reuse without any treatment or recovery, it would be considered byproduct as product and reported in Section 1 item g. of the Form S "Shipped in or as Product." (See section on Byproduct as Product, p.G-6.)

For this example of Integral Recycling, the Form S, Section 1 would be filled out as follows:

c. Manufactured: 0 d. Processed: 0
e. Otherwise Used: **25,000** f. Generated as Byproduct: **25,000**
g. Shipped in or as Product: 0*

** If any integrally recycled material is shipped as product (byproduct as product), Section 1 item g. would reflect that quantity.*

BYPRODUCT AS PRODUCT

A byproduct that is product means a byproduct that is used as a raw material without treatment or processing. If a byproduct is treated before it is used as a raw material, then it is not a product. For TURA purposes, byproduct as product should be listed as a product of the production unit. For example, some recycled paints or solvents can be sold to buyers who can use them as they are. While these would not be counted as byproducts, they would need to be counted in the amount of the chemical shipped off-site as product.

BYPRODUCT AS PRODUCT REPORTING UNDER TURA

Chemical amounts being reported as byproduct as product must be listed in the Form S cover sheet in section 4 as a second product for that production unit. Therefore, at least two products will be listed in any production unit that produces byproduct as product.

01
a. Production Unit #

is this production unit IN USE for the reporting year of this submittal?

☐ yes ☐ no

b. Describe the Process:

Degreasing metal parts

c. Describe the Product:

Cleaned metal parts and recycled solvent

Enter up to (four) 4 six-digit NAICS Codes that best describe the Product from this Production Unit:

332312			
d. NAICS Code	e. NAICS Code	f. NAICS Code	g. NAICS Code

h. Check the appropriate description for the unit of product:

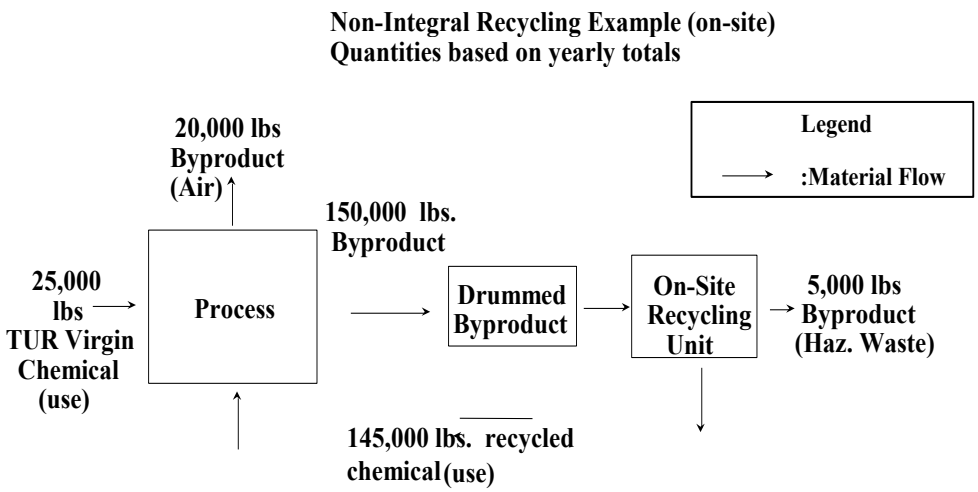
☐ area ☐ dollar ☐ hours ☐ kilowatt ☒ length ☐ N/A ☐ number ☐ volume ☐ weight

NON-INTEGRAL RECYCLING (ON-SITE)

Activities where spent material is removed from the process and transferred into barrels or other containers are not considered integral under this policy. To be considered integral, spent material from the production process must be pumped directly into the recycling unit or into a directly connected holding tank, and then to a directly connected recycling unit.

✓Example: 4

Non-integral, On-Site Recycling Reporting: Many companies have non-integral recycling operations on-site. Their processes include drumming and transporting the material to a different location in the plant at some point during the operation. Although these recycling processes are not considered "integral recycling," TURA and this guidance recognize on-site, non-integral recycling as follows: Companies practicing on-site, non-integral recycling are required to count the recycled chemical as byproduct each time it exits the production unit. Additionally, each time the recycled material is re-introduced as an input to the production unit, it should be added to chemical use quantities at the production unit level, but not to the facility-wide use levels. Therefore, any type of on-site recycling is not counted towards facility-wide use of the chemical, and will result in a reduction in the facility-wide total usage number.



Description of Sample Process: *Each year, 25,000 lbs of virgin chemical plus 145,000 lbs of recycled chemical are added to the process (inputs). Each year 20,000 lbs of byproduct are released to the air and 150,000 lbs of spent chemical is drummed and brought to the on-site recycling unit. The recycling unit generates 5,000 lbs of hazardous waste. The quantities in the diagram show the yearly amounts of byproduct produced and materials processed. Because this is on-site non-integral recycling, the 145,000 lbs of recycled chemical is not counted towards facility-wide use, but is counted toward chemical use at the production unit level.*

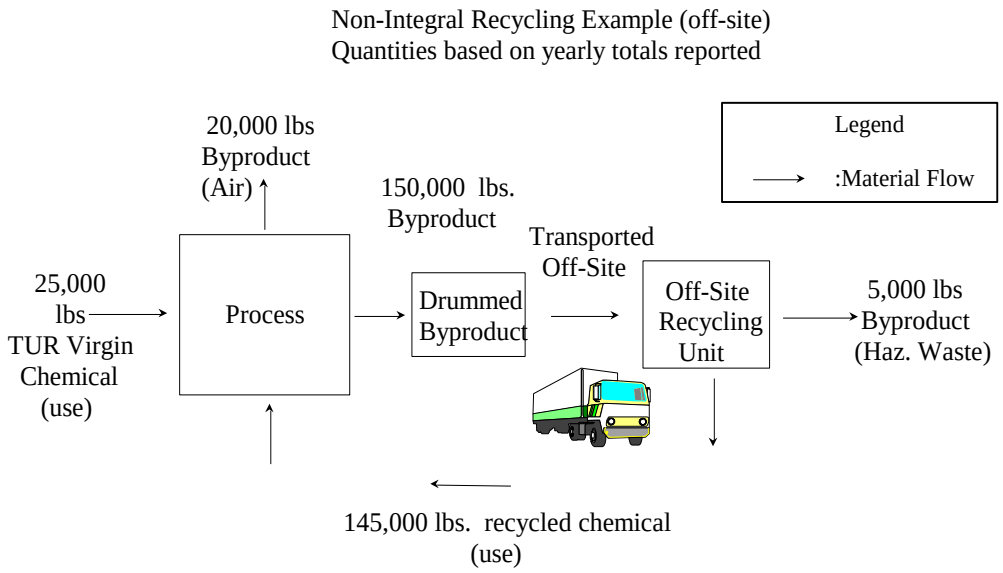
For this example of a company performing Non-Integral On-Site Recycling, the Form S, Section 1, would be filled out as follows:

c. Manufactured: 0 d. Processed: 0
e. Otherwise Used: **25,000** f. Generated as Byproduct: **175,000**
g. Shipped in or as Product: 0*

This example, when compared to the non-integral off-site recycling example below, demonstrates how facility-wide input numbers are minimized with non-integral, on-site recycling. It should be noted on the Form S, in Section 2, that on-site recycling has affected the materials balance for this chemical.

✓Example: 5

Non-Integral Off-Site Recycling Reporting: Activities where materials are sent off-site for recycling are not considered integral under this guidance. Materials recycled off-site and re-introduced into the process, must be counted as byproduct and use both at the facility-wide and production unit levels. This can add significantly to the amount of chemical brought on-site and reported as facility-wide chemical use.



Description of Example Process: Each year, 25,000 lbs of virgin solvent plus 145,000 lbs of recycled solvent are added to the process (inputs). Each year, 20,000 lbs of byproduct are released to the air and 150,000 lbs spent chemical is drummed and shipped off-site to a company which recycles spent solvent. This off-site recycling unit generates 5,000 lbs of hazardous waste. The quantities in the diagram show the yearly amounts of byproduct produced and material processed. Because of this off-site non-integral recycling, the recycled chemical, as well as the virgin chemical, must be counted as inputs to the process. Additionally, the spent chemical, as well as the byproduct emitted to the air, must be counted as byproduct. The 5,000 lbs of hazardous waste byproduct is neither generated nor reported by this facility.

For this example of a company performing Non-Integral Off-Site Recycling, the Form S, Section 1, would be filled out as follows:

c. Manufactured: 0 d. Processed: 0
e. Otherwise Used: 170,000 f. Generated as Byproduct: 170,000
g. Shipped in or as Product: 0*

✓Example 1: Integral Recycling

- The recycling unit is integral to the process, and therefore exempt from 310 CMR 30.000.
- The recycling unit does not need a recycling permit.
- The byproduct generated from the recycling unit is managed as:

1. Hazardous waste, and as such, counts towards hazardous waste generator status
   or
2. Class A regulated recyclable material (notification "permit" required, 310 CMR 30.212)

✓Example 2: Integral Recycling with Portable Recycling Unit

- The recycling unit is integral to the process, and therefore exempt from 310 CMR 30.000.
- The recycling unit does not need a recycling permit.
- The byproduct generated from the recycling unit is managed as:

1. Hazardous waste, and as such, counts towards hazardous waste generator status
   or
2. Class A regulated recyclable material (notification "permit" required, 310 CMR 30.212)

✓Example 3: Integral Recycling Incorporating Holding Tank

- The holding tank is regulated as a hazardous waste accumulation container, subject to generator standards for tanks (310 CMR 30.205(19)).
- The facility's generator status calculation includes the amount fed into the holding tank.
- The recycling unit is regulated as a hazardous waste recycling unit, and therefore needs a Class A or Class B (4) recycling permit (310 CMR 30.212 or 30.213(4))

✓Example 4: On-Site Non-Integral Recycling

- Hazardous waste regulations apply to the drummed byproduct.
- Rate of generation includes the amount of byproduct drummed.
- Hazardous waste recycling permit is required.

✓Example 5: Off-Site Non-Integral Recycling

- Hazardous waste regulations apply to the drummed byproduct.
- Rate of generation includes the amount of byproduct drummed.
- Hazardous waste recycling permit is required for the generator and the recycling facility.

ASSOCIATED HAZARDOUS WASTE ISSUES

GENERAL COMPLIANCE ISSUES

RECYCLING VS. TREATMENT

In order for an activity to qualify as "integral recycling," the material must be recycled or reused, not treated. From the TURA perspective, this is important because the statutory language refers to "recycling, reuse, or extended use of toxics..." and also because the statutory definition of toxics use reduction specifically excludes anything that is, or that promotes, "end-of-pipe treatment." From the hazardous waste perspective, this is important because treatment activities require licenses under both M.G.L.c. 21C and RCRA.

In order to be consistent with RCRA, the following criteria apply when determining whether an activity constitutes recycling: *

- ❑ Is the secondary material as effective as the raw material it replaces?
- ❑ Can the secondary material be fed directly into the process or is reclamation required?
- ❑ How much of the secondary material is used as compared to the analogous raw material?
- ❑ Is the secondary material managed in a manner consistent with the raw material?
- ❑ Are the toxic constituents actually necessary to the product or are they just "along for the ride"

*These criteria are taken from the Federal Register (FR), 53 FR at 522, 52 FR at 17013 and 50 FR at 638.

INHERENTLY WASTE-LIKE MATERIAL

The preceding guidance does not apply to those hazardous wastes listed as F020, F021, F022, F023, F026, F028, since those hazardous wastes are inherently waste-like and must be managed as a hazardous waste, pursuant to the definition of hazardous waste contained at 310 CMR 30.000. Furthermore, those inherently waste-like wastestreams cannot be managed as regulated recyclable materials, since there is no exemption provided in 310 CMR 30.200 for those materials. However, there may be circumstances in which the "treatment that is integral..." exemption, cited in 310 CMR 30.000, might apply and in fact, exempt these wastes from hazardous waste regulations.

STATE-ONLY VS. EPA

Concerning other hazardous waste regulatory compliance issues, a TURA filer must keep in mind that since some hazardous waste activities are regulated on a state-only basis, for these wastes, MassDEP can exert a measure of discretion in policy-making. However, other activities are regulated by both MassDEP and EPA, and in these circumstances, MassDEP's discretion is generally more limited to federal rulings. For example:

- Characteristic sludges and byproducts being reclaimed are regulated by MassDEP only, and can be managed as hazardous waste, or if being reclaimed, they can be managed as a regulated recyclable material.

- Listed sludges and byproduct being reclaimed are regulated by both EPA and MassDEP.

- Spent materials being reclaimed on-site are regulated by both EPA and MassDEP.

OTHER STATE AND FEDERAL LAWS OR REGULATIONS

This guidance does not relieve those responsible for these "recycling activities" from regulatory responsibility contained in any other applicable state or federal laws or regulations. It is incumbent upon the responsible parties to conduct the recycling activities at all times in a manner that is protective of public health, safety, and the environment. To that end, MassDEP reserves its rights pursuant M.G.L. c. 21C, and M.G.L. c. 21I, to review and evaluate any such activity, on a case-by-case basis, and to require persons or entities managing these activities to comply fully with these laws.

Appendix H: Guidance For Using TURA Production Process Codes

This appendix explains how to use the new standardized codes to describe the production processes included in your production unit(s).

Under TURA, the "production unit" [defined as the process(es) used to produce a product] is the basic unit for reporting and planning. In its regulations, MassDEP chose to give firms flexibility over how they designate their production units. The rationale was that firms are better suited to determine meaningful product and process combinations than are the regulators.

In TURA reporting, firms list their production units (as they chose to define them) in the Form S Cover Sheet -- identifying the products using one or more six-digit NAICS codes and describing the processes in their own words. MassDEP amended the TURA regulations (310 CMR 50.30) to incorporate reporting on production processes using generic codes.

This Appendix describes how and why the codes were developed and then explains how to use them to report information on the Form S Cover Sheet. (See "TUR Production Process Codes by Procsess Type" below for the annotated list of the codes.)

Do the codes require that a firm make changes in the way it defined its production unit?

No. The coding system is intended to maintain the traditional flexibility firms have been given in grouping products and processes into production units. No change in how firms define their production units is required. The codes are generic enough that most firms should only need a few codes to describe their processes.

Why were these codes developed?

The standardized process codes were developed, in large part, because of differences in the way similar processes were described by different companies. MassDEP wants to retain the flexibility given to firms in designating production units. We also need to identify, however, the similarities and differences in processes as part of potentially developing user segment regulations.

The coding system is intended to be used to group the 800+ processes reported each year into broad categories based on similarities and differences in such things as: 1) processes, 2) chemical use, 3) byproduct production, and 4) opportunities for TUR. Alpha-numeric codes have been assigned to each generic category.

✓ Example 1: Off-Site Non-Integral Recycling

Each year, a number of firms report deionization of water as a production unit, although the way they describe this process varies. Some refer to it as "D/I Unit," others report only the "regeneration of resins for deionization," etc.

These firms represent a variety of industries, including paper making, pharmaceuticals, electroplating, and co-generation of steam. With the coding system, these firms would uniformly report HH-01 for deionizing water. Once this code is entered into the computer system, MassDEP can run a report, for example, to determine what TUR techniques have been adopted. Any promising developments in one industry can be researched for potential applicability in other industries.

MassDEP has, in fact, seen examples where technology transfers look promising. One TURA filer, primarily a chemical manufacturer, uses electroplated copper powders or flakes as a component in its products. That firm has developed an electroplating process that eliminates the need to use cyanide compounds. Although the process is patented, its development in one industry suggests the potential for technology transfer to traditional electroplating firms.

How To Use the Production Process Codes

Shown below is an excerpt from the **Form S Cover Sheet** showing the top half of Section 4, and calls for identifying the production unit by number, describing the processes involved, describing the product etc.

Section 4: Facility-Wide Listing of Production Units

A PRODUCTION UNIT is best thought of as the combination of the process (or activities) used to produce a product or service and the product or service. In this section, please identify the PRODUCTION UNITS at the facility, then use the production unit number to report on chemical use in the Form S.

If there has been a substantial change in a PRODUCTION UNIT from the previous reporting year, the PRODUCTION UNIT must be given a new, unique number.

a. Production Unit #

is this production unit IN USE for the reporting year of this submittal?

☐ yes ☐ no

b. Describe the Process:

c. Describe the Product:

Enter up to four (4) six-digit NAICS Codes that best describe the Product from this Production Unit:

d. NAICS Code e. NAICS Code f. NACIS Code g. NAICS Code

h. Check the appropriate description for the unit of product:

☐ area ☐ dollar ☐ hours ☐ kilowatt ☐ length ☐ N/A ☐ number ☐ volume ☐ weight

Where the form calls for information concerning the process, a firm should describe any process step that involves a TURA-reported chemical as an input, output or throughput.

A firm need NOT describe a process step that does not involve a TURA chemical. For example, a juice manufacturer would not have to describe mixing as a process step unless a TURA chemical being reported this year was involved. Another manufacturer that mixed food grade acetic acid to produce salad dressing would report the mixing step.

MassDEP does not expect extremely detailed descriptions of process steps and in the past most firms have described their processes in sufficient detail. More specific descriptions, however, will help MassDEP identify similarities and differences in the production processes of firms.

✓Example 2: Off-Site Non-Integral Recycling

Instead of describing process as "household appliance manufacturing," it would be more helpful if the firm reported "spray coating and assembly of household appliances."

After describing the process, a firm describes the product and enters the six-digit NAICS code(s) that best describes that product. Then the unit of product is described in narrative fashion. (See the reporting instructions for more detailed information on completing the first part of Section 4 of the Form S Cover Sheet.)

Using the standardized process codes

Shown below is that part of Section 4 that calls for firms to enter the appropriate standardized process codes.

Production Process Step Information For This Production Unit

i. Enter the production process codes to identify the process steps that involve TURA-reportable chemicals as an input, output or throughput. (See the reporting guidance document for the list of production process codes and instructions on when a given code needs to be listed.)

1. _____ Process Code	2. _____ Process Code	3. _____ Process Code	4. _____ Process Code
5. _____ Process Code	6. _____ Process Code	7. _____ Process Code	8. _____ Process Code
9. _____ Process Code	10. _____ Process Code	11. _____ Process Code	12. _____ Process Code
13 _____ Process Code	14. _____ Process Code	15. _____ Process Code	16. _____ Process Code
17 _____ Process Code	18. _____ Process Code	19. _____ Process Code	20. _____ Process Code
21 _____ Process Code	22. _____ Process Code	23. _____ Process Code	24. _____ Process Code

To complete this part of the cover sheet, firms need to determine which production process code(s) best describe their activities. Note that the production process codes (which are listed in) have been divided into three groups.

Note: There are some firms that may have to review the codes in all the groups. This might occur, for example, with a textile manufacturer that not only dyes fabric but also formulates the dye using a chemical reaction.

Note: The examples and cross - references provided by MassDEP are based upon the agency's best understanding of production processes as described in TURA reports submitted in previous years.

With the first two groups, a distinction has been drawn between production processes generally used to provide services or make (or process) objects (Group 1) and those processes typically associated with the manufacture of chemicals (Group 2).

Group 1 contains processes that typically are used by firms that primarily make or process objects and goods (or provide services).

Group 2 is designed primarily for use by firms that manufacture or process chemicals. (Mainly firms in SIC code 28, 29, 30, some firms in 33 who recover metals, and chemical distributors.)

Group 3 lists miscellaneous processes that might be used by any firm, regardless of whether services are provided, goods are made, or chemicals produced.

DETERMINING WHICH PROCESS GROUP LIST TO USE

If your firm primarily makes or processes objects (or provides services) look first at the codes in Groups 1 and 3. If there are codes on these lists that adequately describe your processes, you need not evaluate or report any of the chemical process codes in Group 2.[5] Similarly, a firm that primarily manufactures or processes chemicals should first look at Groups 2 and 3 for applicable codes.

If your firm makes and processes objects (or provides services) and there is no code in Group 1 or Group 3 that adequately describes your process, you should then check the Group 2 codes. There may be a generic chemical process code that you can use. If you have questions, you can call MassDEP at (617) 292-5711.

For many firms, using the process code lists should be straightforward. MassDEP does recognize, however, that questions and issues of interpretation of the codes may arise. To assist TURA reporters, MassDEP has included examples or other comments in the attached list of codes.

The examples and cross-references are intended ONLY as a guide; each filer is encouraged to use its own best judgment concerning which codes to use. There are, however, some general principles for using the production process codes.

[5] Many process steps in **Group 1** are themselves chemical reactions. For example, electroplating is an oxidation/reduction reaction. An electroplating firm, however, would enter one of the codes for electroplating (AA-12 or AA-13, for example). The firm would NOT enter the **Group 2** code (EE-07) for oxidation/reduction reactions.

1. **Each generic process code refers to the specific steps (or unit operations) normally associated with that process.**

✓Example: 3

A textile manufacturer reports "acid aging," not as a bleaching process but as a step by which dyes are chemically activated. That manufacturer would use the code AA-22 Pigmentation and Dyeing for "acid aging" and all other steps normally associated with dyeing.

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2. **If a number of process steps can be categorized by one code, that code should be entered ONLY once for a given production unit.**

✓Example: 4

A tool manufacturer cuts, drills, and turns metal to produce hand tools. Generally all those processes can be classed as BB-05 Removal by Mechanical Means (Gross Mass Removal). The code BB-05 would be entered once for all those operations if they all are included in a given production unit. (If the firm had a second production unit with the same three processes, BB-05 would be reported for that production unit as well.)

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3. **Use all the codes that apply.**

✓Example: 5

Electroplating as a generic process includes a product cleaning step. The appropriate code for electroplating should be reported, as well as the appropriate product cleaning code.

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4. **Using the "not otherwise specified" codes.**

The production processes are generally placed in subgroups, such as the "Product Molding and Forming" subgroup which includes CC-01 (Casting and Molding), CC-02 (Extrusion and Drawing) CC-03 (Forging), etc.

In some groups, the last code contains the abbreviation N.O.S. for "not otherwise specified." This code should be used for processes that cannot be categorized into one of the codes above it in the subgroup.

What do I do if a process is not adequately described by a listed code?

After looking at Group 1 and 3 codes, a firm that makes or processes objects should next look at the Group 2 chemical reaction codes. If one of those codes apply, use it. If no code truly seems to apply, a firm should use its best judgment to determine which coded process is "most like" the activity being reported.

✓ Example: 6

In the plastics industry there is a relatively new process for forming products known as "pultrusion." With this process, heated plastic is pulled through a die that gives it a specific shape. Assume no existing code is applicable.

Looking over the **Group 1** list, however, the annotations indicate that CC-02: Extrusion and Drawing are processes that give a specific shape to a product by forcing it through a die. "Pultrusion" could be considered "most like" extrusion because a die is used to give shape to a product, even though the plastic is pulled, not pushed.

✓ Example: 7

A food manufacturer uses a TURA-reportable chemical to "fumigate" its facility. Assume that there is no code that covers this process. There are, however, two processes that are similar: FF-04: Equipment Cleaning (Solvent-Based) (includes sanitizing) and HH-02 Process Water Treatment – Biocides and Disinfection (which includes chlorination).

This firm would have to use its best judgment as to which code "fumigation" is most like. If the fumigant used is a solvent, the equipment cleaning code could be viewed as the most applicable. As this example illustrates, there is not necessarily any one "right" answer for which process code is most like "fumigation."

Reporting on the chemicals associated with a production unit

Each production unit may be associated with one or more chemicals. In the last part of section 4, firms list the particular chemical(s) that are associated with the given production unit. There is a space for the chemical name and the chemical abstract service (CAS) number. (If there is no CAS number, leave that line blank.) The form then asks whether the chemical listed is associated with all the process steps coded above. If so, check "YES" and no process codes need to be entered for the chemical. If the chemical is associated with some but not all of the processes, the appropriate process codes should be listed.

To illustrate Section 4 reporting, consider a firm that makes jewelry which reports two chemicals: trichloroethane (used to clean jewelry) and ammonia (used in etching).

The cleaning step would be BB-01: Product Cleaning - Solvent-Based, and the etching process would be BB-04: Removal by Chemical Means. This firm would report as shown below.

✓ Example 8: Production Units

01
a. Production Unit #

is this production unit IN USE for the reporting year of this submittal?

☐ yes ☐ no

b. Describe the Process:

Cleaning and etching and jewelry

c. Describe the Product:

jewelry

Enter up to four (4) six-digit NAICS Codes that best describe the Product from this Production Unit:

339914			
d. NAICS Code	e. NAICS Code	f. NAICS Code	g. NAICS Code

h. Check the appropriate description for the unit of product:

☐ area ☐ dollar ☐ hours ☐ kilowatt ☐ length ☐ N/A ☒ number ☐ volume ☐ weight

✓Example 8: Production Units (Con't)

Production Process Step Information For This Production Unit

i. Enter the production process codes to identify the process steps that involve TURA-reportable chemicals as an input, output or throughput. (See the reporting guidance document for the list of production process codes and instructions on when a given code needs to be listed.)

1. BB-01 Process Code	2. BB-04 Process Code	3. Process Code	4. Process Code
5. Process Code	6. Process Code	7. Process Code	8. Process Code
9. Process Code	10. Process Code	11. Process Code	12. Process Code
13. Process Code	14. Process Code	15. Process Code	16. Process Code
17. Process Code	18. Process Code	19. Process Code	20. Process Code
21. Process Code	22. Process Code	23. Process Code	24. Process Code

List the TURA-reportable chemicals associated with this production unit. If a chemical is associated with ALL the process steps entered in i. above, check ALL. If a chemical is associated with some but not all of the process steps, check the numbers that correspond to the process codes entered in i. above (i.e. box 1

j. Production unit number: 01 (Prod. Unit #)

k. TURA Chemica: 79016 (CAS #) TRICHLOROETHYLENE (Chemical Name)

Check "All" or the numbers that correspond to the process codes entered in i. **All.** ☐

1. ☒ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐ 11. ☐ 12. ☐
13. ☐ 14. ☐ 15. ☐ 16. ☐ 17. ☐ 18. ☐ 19. ☐ 20. ☐ 21. ☐ 22. ☐ 23. ☐ 24. ☐

l. TURA Chemica: 7664417 (CAS #) AMMONIA (Chemical Name)

Check "All" or the numbers that correspond to the process codes entered in i. **All.** ☐

1. ☐ 2. ☒ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐ 11. ☐ 12. ☐
13. ☐ 14. ☐ 15. ☐ 16. ☐ 17. ☐ 18. ☐ 19. ☐ 20. ☐ 21. ☐ 22. ☐ 23. ☐ 24. ☐

TURA Production Process Codes Listing by Process Type

Group 1: Processes Typically Used by Firms that Make and Process Objects or Provide Services

General Guide to Group 1 Process Codes: Codes with the prefix "AA" generally refer to processes that add coatings or other matter to a product. The "BB" codes refer to processes that remove matter from a product. The "CC" codes represent processes by which products are given form, shape, physical dimension or other physical properties.

PROCESS and PROCESS CODE	COMMENTS and EXAMPLES
Coating & Painting Processes	Note: firms that use extrusion to coat objects should use the Extruding/Drawing (CC-02)
AA-01: Dip, Flow & Curtain Coating	Example: processes where excess coating material is allowed to flow or drain off
AA-02: Spray Coating	Example: applying coating as a fine mist or spray Note, however, electrostatic spray coating is included under AA-04 rather than this code
AA-03: Knife/Spread/Roll Coating	Example: using a roller, doctor knife or brush to apply coating
AA-04: Electrostatic Coating Methods	Examples: electrostatic spray coating, electrostatic powder coating, electrocoating
Printing Processes	
AA-05: Letterpress & Flexographic	Example: ink applied to a raised surface of printing plate
AA-06: Lithographic	Example: ink adheres to hydrophobic area/fountain solution adheres to hydrophilic area Use this code to describe the lithographic processes used in semiconductor and printed circuit board manufacturing
AA-07: Gravure	Example: ink remains in recessed areas of the plate Includes gravure coating as well as printing
AA-08: Screen Printing	Example: ink forced through open or porous areas of screen or plate

AA-09: Pad Printing	Example: use of a silicone pad to transfer ink from etched/engraved plate to work piece
AA-10: Printing Using Carrier Films or Foils	Examples: hot stamping, in-mold decorating of plastics using films or foils
AA-11: Jet Printing	Example: use of jet(s) to apply text or a pattern
Plating Processes	
AA-12: Electroplating (Barrel) AA-13: Electroplating (Rack)	
AA-14: Electroless (Barrel) AA-15: Electroless (Rack)	
AA-16: Mechanical Plating	Example: coating a substrate by tumbling or other mechanical means, e.g., using metal powders
AA-17: Hot Dip Coating (of metal)	Examples: galvanizing, hot tin dipping
Processes that penetrate surface layer	
AA-18: Anodizing, Conversion Coating and Case Hardening (through diffusion)	Examples: anodizing, black oxide conversion, bright dipping, chromating, passivating, phosphating Includes case hardening through diffusion of substances in the surface layer of metal (e.g., nitriding, nitrocarburizing) For case hardening through the application of energy/heat, see CC-04
AA-19: Deposition	Examples: vacuum metallizing, sputtering, metal (flame) spraying
Processes that add material throughout the mass of a product	
AA-20: Pigmentation/Dyeing	
AA-21: Infiltration/Saturation	Example: kraft paper saturation
AA-22: Impregnation/Implantation	Examples: (from semiconductor industry) - doping (through diffusion), ion implantation, vacuum impregnation
Processes that remove material from product	

Product or Parts Cleaning	Removing dirt, grease and other foreign matter from product For drying that occurs as part of cleaning use BB-09
BB-01: Solvent-Based	
BB-02: Aqueous	Includes rinsing
BB-03: Mechanical	Examples: sand blasting, cleaning with saw dust
Removal of Mass from Substrate (excluding Cleaning)	
BB-04: Removal by Chemical Means	Includes bleaching (in textiles), chemical stripping, electropolishing, etching, pickling (of metals)
BB-05: Removal by Mechanical Means (Gross Mass Removal)	Includes processes that remove pieces or chips from product; can include cutting, drilling, lathing, turning
BB-06: Removal by Mechanical Means (Fine Mass Removal/Size Reduction)	Includes removal methods that produce fine particles/dust; can include abrasive blasting, grinding, milling, polishing (processes that smooth the surface without removing material should be reported as CC-06)
BB-07: Removal by Chemical and Mechanical Means	Example: (in paper making) pulping where mechanical and chemical processes are used
BB-08: Removal by Application of Heat or Energy	Example: laser cutting
BB-09: Drying NOS	Drying not otherwise specified; includes chemical drying
Product Molding/Forming	
CC-01: Casting/Molding	Includes all forms of casting, injection molding, blow molding and similar processes
CC-02: Extrusion/Drawing	Includes processes by which a product is given shape by pushing material through a die or similar device Firms that coat products by extrusion should use this code
CC-03: Forging	

CC-04: Heat Treating NOS	Examples: controlled heating of metal to increase or decrease hardness, improve machinability, relieve stresses etc. (annealing, austempering, tempering and case hardening)
CC-05: Quenching	Example: rapid cooling after heat treating through contact with liquids, gases or solids
CC-06: Forming by Mechanical Means NOS	Forming by Mechanical Means not otherwise specified Examples: bending, cold heading, embossing, rolling
Bonding/Joining	
CC-07: Application of Adhesives	
CC-08: Soldering/Brazing	
CC-09: Welding	
CC-10: Sintering/Powder Metallurgy	
CC-11: Joining through Application of Heat/Energy NOS	Joining through Application of Heat/Energy not otherwise specified
CC-12: Joining through Chemical Means NOS	Joining through Chemical Means not otherwise specifed
CC-13: Joining through Mechanical Means NOS	Joining through Mechanical Means not otherwise specified Examples: cladding

Group 2: Production Processes Typically Used by Firms that Manufacture and Process Chemicals

PROCESS and PROCESS CODE	COMMENTS and EXAMPLES
SEPARATION/REFINING	
DD-01: Centrifuge/Filtration	
DD-02: Distillation	
DD-03: Drying	
DD-04: Extraction	
DD-05: Precipitation	
DD-06: Refining/Purification	
DD-07: Smelting	
CHEMICAL REACTIONS	
EE-01: Acetalization	
EE-02: Condensation	
EE-03: Curing, Vulcanizing, Cross Linking	
EE-04: Dehydrogenation	
EE-05: Esterification	
EE-06: Hydrogenation	
EE-07: Oxidation/Reduction	
EE-08: pH Adjust	
EE-09: Polymerization	
EE-10: Substitution Reactions	Includes halogenization and chlorination
EE-11: Chemical Reactions NOS	Chemical Reactions not otherwise specified

Group 3: Miscellaneous Processes that could be used by any firm

PROCESS and PROCESS CODE	COMMENTS and EXAMPLES
Production Equipment Cleaning	Examples: cleaning of vessels, process lines, printing plates, such devices as spray guns. Also includes descaling of boilers NOTE: Equipment cleaning includes SANITIZING
FF-01: Solvent-Based	
FF-02: Aqueous	Example: use of caustic solutions to clean production equipment
FF-03: Mechanical	Example: use of wiper blades, squeegees
Materials Storage/Handling	
GG-01: Blending, Mixing, Compounding	
GG-02: Particle Size Reduction	Example: grinding mills
GG-03: Packaging/Filling	Examples: bottling liquid products, repackaging
GG-04: Materials Storage/Handling NOS	Materials Storage Handling not otherwise specified Use for storage and handling processes that generate losses such as spills or evaporative losses
Treatment of Process Water	
HH-01: Deionization, Demineralization	Examples: deionization, water softening, including associated process like regeneration of deionization resins
HH-02: Use of Biocides/Disinfection	Examples: water chlorination, use of algaecides in cooling towers
HH-03: pH Control of Process Water NOS	pH Control of Process Water (including water in boilers), not otherwise specified
Refrigeration/Temperature Control	
II-01: Refrigeration	
II-02: Heat Exchange Unit	
II-03: Contact Cooling NOS	Contact Cooling not otherwise specified Do not use for quenching. Quenching is CC-05

II-04: Noncontact Cooling NOS	Noncontact Cooling not otherwise specified
Power Generation	
JJ-01: Production of Electricity, Steam, Facility Heat	Applies to processes producing electricity, steam or heat through combustion, includes co-generation Note: use an FF code for equipment cleaning associated with power production and a HH code for treatment of cooling or boiler water

TURA Production Process Codes: Alphabetized Listing of Group 1 and 3

MassDEP has prepared the following alphabetical listing of some of the more commonly reported production processes with cross-references to the recommended codes listed above. This appendix explains how to use generic codes to report on production processes in the Form S Cover Sheet. The alphabetical list covers selected processes from Groups 1 and 3 of the codes listed in "TUR Production Process Codes by Procsess Type" above.[6] (Firms that are primarily in the chemical manufacturing NAICS codes should also refer to the Group 2 codes. The processes associated with chemical manufacturing are not included in this alphabetical list.)

"TUR Production Process Codes by Procsess Type" should also be consulted to confirm the applicability of a code. While the appendix and this list are intended to provide guidance, each filer is encouraged to use his or her best judgment concerning which code(s) adequately describes its processes.

IMPORTANT NOTE ON THE "MOST LIKE" AND "NOT OTHERWISE SPECIFIED" CODING:

"TUR Production Process Codes by Procsess Type" divides the codes into subgroups, such as CC-01 through CC-06 for the product molding and forming codes. Some of the subgroups contain one or more codes containing the abbreviation "NOS" for "not otherwise specified."

Each NOS code is a default code for its group. For example, CC-06 (Forming by Mechanical Means NOS) should be used for any mechanical product forming process other than those specifically-named in its group (e.g., casting, molding, extrusion, etc.). The use of the "most like" coding method discussed above should only be used as a last resort, i.e., if there is no applicable code, NOS or otherwise.

[6] TUR Production Process Codes by Procsess Type"divides the codes into three groups: Group 1 lists processes typically used by firms that primarily make or process objects (or provide services). Group 2 lists processes typically used by firms that are primarily in the chemical manufacturing SIC codes. Group 3 lists miscellaneous processes that might be used by any firm regardless of whether objects or chemicals are made/processed (or services provided).

ALPHABETICAL LISTING OF PRODUCTION PROCESSES

Process Step	Cross-Reference / Comment
abrasive blasting	*see codes listed below under "removal of mass from substrate"*
acid aging	see AA-20 (Pigmentation/Dyeing), for acid aging as a step in dyeing
annealing	see CC-04 (Heat Treating NOS)
anodizing	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
application of adhesives	see CC-07 (Application of Adhesives - Bonding/Joining)
aqueous-based cleaning	see FF-02 (Aqueous Cleaning of Production Equipment) of production equipment
aqueous-based cleaning	see BB-02 (Aqueous Cleaning of Product or Parts) of work product
austempering	see CC-04 (Heat Treating NOS)
bending	see CC-06 (Forming by Mechanical Means NOS)
black oxide	see AA-18 (Anodizing, Conversion Coating & Case Hardening conversion coating [through diffusion])
blanking	*see codes listed below under "removal of mass from substrate"*
bleaching	see BB-04 (Removal by Chemical Means)
blending	see GG-01 (Blending, Mixing, Compounding)
blow molding	see CC-01 (Casting/Molding)
bonding/joining	see as appropriate: CC-07 (Application of Adhesives) CC-08 (Soldering/Brazing) CC-09 (Welding) CC-10 (Sintering/Powder Metallurgy) CC-11 (Joining through Application of Heat/Energy NOS)

	CC-12 (Joining through Chemical Means NOS) CC-13 (Joining through Mechanical Means NOS)
boring	*see codes listed below under "removal of mass from substrate"*
bottling liquid products	see GG-03 (Packaging/Filling)
brazing	see CC-08 (Soldering/Brazing)
bright dipping	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion]) if bright dipping is intended to alter the chemical structure of the workpiece's surface see BB-04 (Removal by Chemical Means) if bright dipping is intended to remove mass from the workpiece
broaching	*see codes listed below under "removal of mass from substrate"*
brush-on coating	see AA-03 (Knife/Spread/Roll Coating)
buffing	see as appropriate: CC-06 (Forming by Mechanical Means NOS), if the process is not intended to remove material from the work piece *codes listed below under "removal of mass from substrate,"* if the process is intended to remove material from the work piece
burnishing	see as appropriate: CC-06 (Forming by Mechanical Means NOS), if the process is not intended to remove material from the work piece *codes listed below under "removal of mass from substrate,"* if the process is intended to remove material from the work piece
calendering	see CC-06 (Forming by Mechanical Means NOS)
case hardening	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion]), includes processes such as nitriding

case hardening by heat treating	see CC-04 (Heat Treating NOS)
casting	see CC-01 (Casting/Molding)
chemical drying	see BB-09 (Drying NOS), if chemical drying refers, for example, to the use solvents for drying a work product see DD-03 (Drying) for chemical manufacturers that dry chemicals
chemical stripping	see BB-04 (Removal by Chemical
chromating	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
cladding	see CC-13 (Joining through Mechanical Means (NOS) leaning of production equipment see as appropriate: FF-01 (Solvent-Based Cleaning of Production Equipment) FF-02 (Aqueous Cleaning of Production Equipment) FF-03 (Mechanical Cleaning of Production Equipment) cleaning of work product see as appropriate: BB-01 (Solvent-Based Cleaning of Product or Parts) BB-02 (Aqueous Cleaning of Product or Parts) BB-03 (Mechanical Cleaning of Product or Parts)
co-extrusion	see CC-02 (Extrusion/Drawing)
co-generation	see JJ-01 (Production of Electricity, Steam, Facility Heat)
cold heading	see CC-06 (Forming by Mechanical Means NOS)
compounding	see GG-01 (Blending, Mixing, Compounding
contact cooling	see II-03 (Contact Cooling NOS) or quenching, however, use CC-05 (Quenching)
conversion coating	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
conveyorized degreasing	*see codes listed above under "cleaning of work product"*
crystal growth	see AA-19 (Deposition)

curtain coating	see AA-01 (Dip, Flow & Curtain Coating)
cutting	*see codes listed below under "removal of mass from substrate"*
deburring	*see codes listed below under "removal of mass from substrate"*
degreasing	*see codes listed above under "cleaning of work product"*
deionization	see HH-01 (Deionization, Demineralization), includes the regeneration of deionization resins (of process water)
demineralization	see HH-01 (Deionization, Demineralization)
deposition	see AA-19 (Deposition) use this code for processes that in deposit thin films (usually of metal) and for crystal growth (includes metal [flame] spraying, sputtering, vacuum metallizing)
descaling of boilers	*see codes listed above under "cleaning of production equipment"*
descaling of work product	*see codes listed below under "removal of mass from substrate"*
desmutting	*see codes listed below under "removal of mass from substrate"*
dip coating	see AA-01 (Dip, Flow & Curtain Coating)
disinfection	see HH-02 (Treatment of Process Water: Use of of process water Biocides/Disinfection)
doping (through diffusion)	see AA-22 (Impregnation/Implantation)
drawing	see CC-02 (Extrusion/Drawing)
drilling	*see codes listed below under "removal of mass from substrate"*
dry cleaning (of clothes)	*see codes listed above under "cleaning of work product"*
drying (of work product)	see BB-09 (Drying NOS)
dyeing	see AA-20 (Pigmentation/Dyeing)

electric power generation	see JJ-01 (Production of Electricity, Steam, Facility Heat)
electrocoating	see AA-04 (Electrostatic Coating Methods)
electroless plating (barrel)	see AA-14 (Electroless Plating [Barrel])
electroless plating (rack)	see AA-15 (Electroless Plating [Rack])
electroplating (barrel)	see AA-12 (Electroplating [Barrel])
electroplating (rack)	see AA-13 (Electroplating [Rack])
electropolishing	see BB-04 (Removal by Chemical Means)
electrostatic coating methods	see AA-04 (Electrostatic Coating Methods)
electrostatic powder coating	see AA-04 (Electrostatic Coating Methods)
electrostatic spray coating	see AA-04 (Electrostatic Coating Methods
embossing	see CC-06 (Forming by Mechanical Means NOS)
equipment cleaning	*see codes listed above under "cleaning of production equipment"*
etching	see BB-04 (Removal by Chemical Means)
extrusion	see CC-02 (Extrusion/Drawing)
filling	see GG-03 (Packaging/Filling)
flame and arc cutting	see BB-08 (Removal by Application of Heat or Energy)
flexographic printing	see AA-05 (Letterpress & Flexographic Printing)
flow coating	see AA-01 (Dip, Flow & Curtain Coating)
foam molding	see CC-01 (Casting/Molding)
forging	see CC-03 (Forging)
forming by mechanical means NOS	see CC-06 (Forming by Mechanical Means NOS) mechanical forming processe other than casting/molding (CC-01), extrusion/drawing (CC-02) or forging (CC-03)

galvanizing	see as appropriate: AA-17 (Hot Dip Coating of Metal) AA-12 (Electroplating, Barrel) & AA-13 (Electroplating, Rack), if galvanizing is by electroplating
gravure printing	see AA-07 (Gravure)
gravure coating	see AA-07 (Gravure)
grinding	see as appropriate: *codes listed below under "removal of mass from substrate"* GG-02 (Particle Size Reduction) for grinding of chemicals, as in grinding of paint pigments
heat exchange unit	see II-02 (Heat Exchange Unit)
heat treating	see CC-04 (Heat Treating NOS)
hobbing	*see codes listed below under "removal of mass from substrate*
hot dip coating (of metal)	see AA-17 (Hot Dip Coating of Metal)
hot stamping	see AA-10 (Printing Using Carrier Films or Foils) (printing)
hot tin dipping	see AA-17 (Hot Dip Coating of Metal)
implantation	see AA-22 (Impregnation/Implantation)
impregnation	see AA-22 (Impregnation/Implantation)
in-mold decorating of plastics	see AA-10 (Printing Using Carrier Films or Foils) using films or foils
infiltration	see AA-21 (Infiltration/Saturation)
injection molding	see CC-01 (Casting/Molding)
ion implantation	see AA-22 (Impregnation/Implantation)
jet printing	see AA-11 (Jet Printing)

knife coating	see AA-03 (Knife/Spread/Roll Coating)
knife over roll coating	see AA-03 (Knife/Spread/Roll Coating)
kraft paper saturation	see AA-21 (Infiltration/Saturation)
laser cutting	see BB-08 (Removal by Application of Heat or Energy)
lathing	*see codes listed below under "removal of mass from substrate"*
letterpress printing	see AA-05 (Letterpress & Flexographic Printing)
lithographic printing	see AA-06 (Lithographic)
machining	*see codes listed below under "removal of mass from substrate"*
materials storage/handling	see as appropriate: GG-01 (Blending, Mixing, Compounding) GG-02 (Particle Size Reduction) GG-03 (Packaging/Filling) GG-04 (Materials Storage Handling NOS)
mechanical plating	see AA-16 (Mechanical Plating)
metal (flame) spraying	see AA-19 (Deposition)
milling	see as appropriate: *codes listed below under "removal of mass from substrate"* GG-02 (Particle Size Reduction) as in the use of grinding mills
mixing	see GG-01 (Blending, Mixing, Compounding)
molding	see CC-01 (Casting/Molding)
neutralization	if neutralization is a step in a coded process, use that code for that process, for example, if neutralization is a step in dyeing, the appropriate code would be AA-20 (Pigmentation/Dyeing)
use EE-08	if neutralization is used in the manufacture of a chemical, (pH Adjust)

nitriding	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
nitrocarburizing	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
noncontact cooling	see II-04 (Noncontact Cooling NOS) (where cooling fluid is kept separate from the production process)
packaging	see GG-03 (Packaging/Filling)
pad printing	see AA-09 (Pad Printing)
particle size reduction	see GG-02 (Particle Size Reduction), for processes such as the grinding of paint pigments
passivating	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
pH control	see HH-03 (pH Control of Process Water [including water in of process water boilers] NOS)
photolithography	see AA-06 (Lithographic)
phosphatizing	see AA-18 (Anodizing, Conversion Coating & Case Hardening [through diffusion])
pickling (of metals)	see BB-04 (Removal by Chemical Means)
pigmentation	see AA-20 (Pigmentation/Dyeing)
polishing	*codes listed below under "removal of mass from substrate,"* if material is removed from work piece
polishing (continued)	CC-06 (Forming by Mechanical Means NOS) if material is not removed from work piece
powder metallurgy	see CC-10 (Sintering/Powder Metallurgy)
pressure treating (wood)	see AA-22 (Impregnation/Implantation)
printing using	see AA-10 (Printing Using Carrier or Filmscarrier films or Foils)

NOTE: some mechanical "removal" processes (e.g., polishing) can be used either to remove material or to smooth the surface of a product without removing material. The

code for such mechanical surface "smoothing" is CC-06 (Forming by Mechanical Means NOS).

pulping (in paper making)	see as appropriate: BB-05 (Removal by Mechanical Means - Gross Mass Removal) BB-06 (Removal by Mechanical Means - Fine Mass Removal) BB-07 (Removal by Chemical & Mechanical Means)
punching	*see codes listed below under "removal of mass from substrate"*
quenching	see CC-05 (Quenching)
refrigeration	see II-01 (Refrigeration)
regeneration of deionization resins	see HH-01 (Deionization, Demineralization)
removal of mass from substrate	refers to processes which can be used to a work product, generally, excluding the removal of dirt or grease cleaning as in removal The six removal codes are: BB-04 (Removal by Chemical Means) BB-05 (Removal by Mechanical Means -- Gross Mass Removal), to be used if process removes pieces or chips BB-06 (Removal by Mechanical Means -- Fine Mass Removal/ Size Reduction), to be used if process produces fine particles or dust BB-07 (Removal by Chemical & Mechanical Means) BB-08 (Removal by Application of Heat or Energy) BB-09 (Drying NOS) for drying work products
repackaging	see GG-03 (Packaging/Filling)
reverse roll coating/printing	see AA-03 (Knife/Spread/Roll Coating)

rinsing	see BB-02 (Aqueous Cleaning of Product or Parts)
roll coating	see AA-03 (Knife/Spread/Roll Coating)
rolling	see CC-06 (Forming by Mechanical Means NOS)
rotary screen printing	see AA-08 (Screen Printing)
sand blasting	*see codes listed above under "removal of mass from substrate"*
sanitizing (production equipment)	*see codes listed above under "cleaning of production equipment"*
saturation	see AA-21 (Infiltration/Saturation)
sawing	*see codes listed above under "removal of mass from substrate"*
semi-aqueous cleaning	see BB-01 (Solvent-Based Cleaning of Product or of work product parts)
scouring (textile products)	*see codes listed above under "cleaning of work product"*
screen printing	see AA-08 (Screen Printing)
shearing	*see codes listed above under "removal of mass from substrate"*
sintering	see CC-10 (Sintering/Powder Metallurgy)
soldering	see CC-08 (Soldering/Brazing)
solvent-based cleaning	see FF-01 (Solvent-Based Production Equipment of production equipment Cleaning)
solvent-based cleaning	see BB-01 (Solvent-Based Cleaning of Product or of work product Parts)
solvent drying	see BB-09 (Drying NOS), for the use solvents to dry a product or work piece
spray coating	see AA-02 (Spray Coating) (does not include electrostatic spray coating)

spray coating	see AA-04 (Electrostatic Coating Methods) for electrostatic
spread coating	see AA-03 (Knife/Spread/Roll Coating)
sputtering	see AA-19 (Deposition)
steam generation via combustion	see JJ-01 (Production of Electricity, Steam, Facility Heat)
straightening	see CC-06 (Forming by Mechanical Means NOS)
tempering	see CC-04 (Heat Treating NOS)
trimming	*see codes listed above under "removal of mass from substrate"*
tumbling	see as appropriate: AA-16 (Mechanical Plating), if tumbling is used to plate *codes listed above under "removal of mass from substrate,"* if tumbling is used to remove mass from a work product, such as tumbling to deburr CC-06 (Forming by Mechanical Means NOS), if tumbling is used to smooth a work product without removing mass turning *see codes listed above under "removal of mass from substrate"*
ultrasonic cleaning of parts	*see codes listed above under "cleaning of work product"*
use of biocides	see HH-02 (Treatment of Process Water: Use of in process water/cooling towers Biocides/Disinfection)
use of squeegees/wiper blades/rags	*see codes listed above under "cleaning of production equipment"*to clean production equipment
vacuum impregnation	see AA-22 (Impregnation/Implantation)
vacuum metallizing	see AA-19 (Deposition)
vapor degreasing	*see codes listed above under "cleaning of work product"*
water deionization	see HH-01 (Deionization, Demineralization)
water chlorination Biocides/Disinfection	see HH-02 (Treatment of Process Water: Use of

water softening	see HH-01 (Deionization, Demineralization)
welding	see CC-09 (Welding)

Appendix I: Production Units

The Form S contains both facility-wide and process-specific information. Facilities report information on the quantity of chemical used and the amount generated as byproduct (waste) on a facility-wide level. Any progress in reducing byproduct through the implementation of toxics use reduction is measured and reported at the process (or "production unit") level.

A **production unit** is "a process, line, method, activity, or techniques, or a combination or series thereof, used to produce a product or a family of products."

A **product** means "a product, family of products, an intermediate product, a family of intermediate products, or a desired result or family of results."

A **result** is, for example, clean laundry after an industrial cleaning process.

A **family of products** is, for example, three different rubber compounds grouped together as one product.

Intermediate product is, for example: A chemical manufacturer produces methanol as an intermediate step in the production of formaldehyde. The methanol can be considered a product.

With these definitions TURA gives facilities flexibility in how they divide their facility into production units:

- A production unit can include all of the processes used to produce an individual item such as a particular shade of paint or a plated knife, or that produce a desired result such as cleaned out lines and mixing vats.

- Products can be grouped together into a family of products so that, for instance, all of the processes used to create several different shades of paint could be considered one production unit.

- An individual process step such as degreasing coupled with the result of that step (for example, a degreased piece of metal), can be considered a separate production unit.

- Separate process lines that make the same product can be considered as one production unit.

For guidance on factors that should be considered when establishing production units, please refer to MassDEP's "Guidelines for Classifying Production Units". This can be obtained on the MassDEP web site at
http://www.mass.gov/eea/agencies/massdep/toxics/regulations/guidelines-for-classifying-production-units.html

In addition to identifying production units, facilities must also establish a "unit of product." There are two basic explanations for a decline in the quantity of chemical generated as byproduct: There could have been a drop in production levels, or, through the implementation of TUR, less byproduct could have been generated per unit of product produced.

In order to distinguish byproduct reductions that occur through declines in production from those that occur because of the implementation of TUR, production level reporting is done on a "per unit of product" basis.

As with production units, facilities are free to select the unit of product. The key to choosing a unit of product is that the measure should be a reliable indicator of changes in production levels. The unit of product should be one that reliably increases or decreases as production goes up or down. The Guidelines for Classifying Production Units discusses considerations for selecting a unit of product.

In most cases, an acceptable choice will be a physical measure such as pounds of ammonia manufactured by the production unit or square yards of printed fabric.

✓Example

Example	Units of Product
No. of Products/year	No. of wood chairs
Square feet/year	square feet of anodized parts
Pounds/year	pounds of formaldehyde produced
Gallons/year	gallons of paint produced

Sometimes, however, it may not be possible to identify a physical measure that reliably reflects outputs. In such a case, a non-physical measure may be used as a way to quantify changes in production. Examples of this may include: hours of operation, labor hours, and dollar sales.

Non-physical measures can be affected by things that have nothing to do with changing levels of production. For instance, dollar sales will be influenced by changes in inflation, or perhaps, by product pricing. Labor hours might be less reliable if there has been a mid-year shift to automation, making output more efficient.

If you chose a non-physical unit of product, you must provide a written explanation as to why a physical measure cannot be used. You must also state how the non-physical measure has been adjusted to accurately reflect production levels rather than changes in costs, prices, inventory, productivity or other factors.

Appendix J: Glossary of Terms

Alloy: a substance possessing metallic properties and composed of two or more elements of which at least one must be a metal. The term refers to those cases where there is an intentional addition to a metal for the purpose of improving certain properties.

Byproduct: Nonproduct outputs of toxic or hazardous substances generated by a production unit, before handling, transfer, treatment or release. Otherwise used substances shall be counted as byproduct when they leave a production unit.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act, commonly referred to as "Superfund."

EPCRA: Emergency Planning and Community Right to Know Act.

Facility: all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person, or by any person who controls, is controlled by, or is under common control with such person.

Full-Time Employee Equivalent: An FTE is defined as 2,000 work hours per year. The 10 FTE criteria is met if a total of 20,000 hours were worked by all employees (including consultants) whether they worked full or part-time.

Note: repackaging the chemical is considered processing.

Higher Hazard Substance: means a substance designated by the Council as a higher hazard substance pursuant to M.G.L. c. 21I, § 9 and 301 CMR 41.00.

Included NAICS/SIC Codes: This is one of the areas where TURA's requirements differ from those of EPCRA.

Under TURA, the NAICS/SIC code criteria is met if any of your business activities are conducted in the areas represented by TURA's longer list of included NAICS/SIC codes. The TURA list includes manufacturing plus business activities such as transportation, wholesale trade, and business or personal services.

EPCRA reporting is only required of firms that derive more than 50% of their business from **manufacturing**. For the descriptions of the NAICS/SIC codes, see Appendix A.

Lower Hazard Substance: means a substance designated by the Council as a lower hazard substance pursuant to M.G.L. c. 21I, § 9 and 301 CMR 41.00.

Manufacture: to produce, prepare, import or compound a toxic or hazardous substance. Manufacture shall also mean to produce a toxic or hazardous substance coincidentally during the manufacture, processing, use, or disposal of another substance that is

separated from that other substance or mixture of substances as a byproduct, and a toxic substance that remains in that other substance or mixture of substances as an impurity.

Otherwise Use: EPA has revised it's definition of OTHERWISE USE to mean 'any use of a toxic chemical, including a toxic chemical contained in a mixture or other trade name product or waste, that is not covered in the terms "manufacture" or "process." Othwerwise use of a toxic chemical does not include disposal, stabilization (without subsiquent distribution in commerce), or treatment for destruction unless:

A. The toxic chemical that was disposed, stabilized, or treated for destruction was received from off-site for the purposes of further waste management; or

B. The toxic chemical that was disposed, stabilized, or treated for destruction was manufactured as a result of waste management activities on materials received from off-site for the purposes of further waste management activities. Relabeling or redistributing of the toxic chemical where no repackaging of the toxic chemical occurs does not constitute otherwise use or processing the toxic chemical.

Process: the preparation of a toxic or hazardous substance, including, without limitation, a toxic substance contained in a mixture or trade name product, after its manufacture, for distribution in commerce:

- in the same form or physical state, or in a different form or physical state from that in which it was received by the toxics user preparing such substance; or
- as part of an article containing the toxic or hazardous substance.

Product: a product, a family of products, an intermediate product, family of intermediate products, or a desired result or a family of results. "Product" also means a byproduct that is used as a raw material without treatment.

Sanitized vs. Unsanitized Reports: If you make a Trade Secret claim, you must submit two versions of your report -- one that contains the Trade Secret information (**unsanitized**) and one that does not (**sanitized**). In Item g. in Section 1 of the Form S Cover Sheet, indicate whether the version of the report is sanitized or unsanitized.

Shipped in or as Product: the quantity of the chemical that leaves the facility as product.

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Charles D. Baker, Governor

Executive Office of Energy and Environmental Affairs
Matthew A. Beaton, Secretary

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Martin Suuberg, Commissioner