

Water-Based Gun Washing

Auto body shops have traditionally used solvents and paint thinner to clean their spray guns. However, using these solvents presents health risks to workers and the community. Health risks are higher for workers who are directly exposed to the chemicals while working in an enclosed space. Health impacts include irritation to the skin, eyes, and respiratory system, increased risk of cancer, reproductive issues, and potential damage to the nervous system. Solvents used to clean guns also need to be managed as hazardous waste, which costs shops money. See the “Hazardous Waste Management” and “Common Hazardous Wastes” fact sheets. A number of alternative gun-cleaning options are on the market that can make shops safer and save owners money by reducing hazardous waste.

Overview and Benefits

Water-based gun wash is a cleaning solution that is lower in toxicity and performs comparably to paint thinner and other solvents found in traditional gun washing products. Switching from a solvent-based to a water-based solution greatly improves the air quality in the shop and reduces health risks for workers and your neighborhood. The Toxics Use Reduction Institute (TURI) provides [small business grants](#) for companies that want to try new safer products but are not able to make the investment completely on their own. Also, the Massachusetts Office of Technical Assistance (OTA) can provide advice and support for making the change.

Use an Enclosed Gun Washer:

As required by Massachusetts, spray guns must be cleaned in a device that minimizes solvent evaporation during cleaning, rinsing, and draining operations; re-circulates solvent during the cleaning operation so that the solvent is reused; and collects spent solvent so that it is available for proper disposal or recycling [310 CMR 7.18(28)(g)].

These work in a system that re-circulates the solution through two filters. Instead of dissolving the paint, it lifts the paint off the gun. The same batch of solution can be reused for a long period of time before needing to be swapped out, reducing disposal costs. In most cases, it is not necessary to pre-clean the equipment before putting it in the cleaner. ***This type of solution can be successfully used to clean both solvent and water-based coatings.*** Be aware that many water-based solutions are not VOC-free although they do contain much lower levels than solvent-based solutions.

Things to Consider

Drying time

Alternative gun cleaning methods may take longer to dry equipment than solvents due to their reduced VOC levels. Therefore, shops may need to adjust their process to include drying time with compressed air to prevent corrosion of the equipment. Another option is to investigate enclosed gun washers that fully clean and dry the paint gun equipment, turning out an immediately usable paint gun when done.

Concerns about cost difference between solvents and alternatives

While safer gun cleaning chemicals may cost more per gallon to purchase, they last much longer than solvent based solutions because they evaporate more slowly than common solvents. The reduction in

hazardous waste can save shops enough money to make the alternative worth the investment (see [912 Auto Center case study](#) and success story below).

Use of disposable paint gun liners

Disposable paint gun liners allow paint technicians to measure the amount of paint used for a particular paint job into a plastic cup that is then attached to the spray gun. This allows paint technicians to be more precise in their paint use, as well as giving them the ability to easily store the leftover paint for future use. The use of these products has the additional benefit of having one less part to clean on the gun and prolongs the life of whatever cleaning solution is used. Paint gun liners can be used with either water or solvent-based paints, but must always be disposed of as hazardous waste, unless proven otherwise. See the “Hazardous Waste Management” fact sheet for more information.

Take the Next Step

Contact the Office of Technical Assistance (OTA):

OTA’s [Tiffany Skogstrom](#) (617-626-1086) and [Marina Gayl](#) (617-626-1077) have expertise in auto shop environmental safety. They can offer free and confidential assistance and advice.

Talk to your supplier

Many different gun washing solutions and technologies are on the market. Ask your supplier about products such as [Acrastrip from US PolyChem](#), [Safe Strip from EcoLink](#), [Vertec Bio Citrus](#) or [Vertec Bio Gold](#) from Vertec BioSolvents. These solutions can usually be used in your existing gun washing machine – ask the manufacturer for requirements and instructions. However, if you do need to purchase a new gun wash machine, look into a device that can support water-based solutions, such as those provided by [Becca](#) or [Bonny Marlin](#).

Explore funding sources

If your shop is ready to invest in a new system and would like financial assistance in purchasing an alternative gun cleaning system, contact [OTA](#) (617-626-1060) or [TURI](#) (978-934-4343) to learn more about small business grant opportunities.

Find Additional Information

- See California’s Department of Toxic Substances Control [Paint Spray Gun Cleaning fact sheet](#).
- See NEWMOA’s [Pollution Prevention Technology Profile: Enclosed Spray Gun Washers Using Alternative Cleaners](#) for an extensive examination of gun cleaning alternatives including several case studies.

For free and confidential technical assistance or questions, contact:
MA Office of Technical Assistance 100 Cambridge St. Suite 900, Boston, MA, 02114
Phone: 617.626.1060 Fax: 617.626.1095 E-mail: maota@state.ma.us
www.mass.gov/eea/ota/masscar

Success Stories

912 Auto Center (Dorchester, MA) used a location change in 2007 as an opportunity to install both a water-based gun washing system and began using water-based paints. Larry Dossantos, the owner of 912 Auto Center, switched to the Axalta (formerly DuPont) [Cromax Pro](#) line of water-based paints along with [Acrastrip](#), a gun washing chemical by US Polychem. In a recent [case study](#), Dossantos describes the improved working environment brought about by both switches. He also reports that the water-based gun washer cleans much better than the old solvent system, and saves him money in product purchasing and hazardous waste disposal costs.

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