



Commonwealth of Massachusetts Executive Office of Labor and Workforce Development



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On-Site Consultation Program
Industrial Hygiene Supervisor

Deval L. Patrick, Governor
Rachel Kaprielian, Secretary



- ▶ Massachusetts Department of Labor Standards
- ▶ On-Site Consultation



- ▶ United States Department of Labor
- ▶ Occupational Safety and Health Administration (OSHA)

MA On-Site Consultation Program


- ▶ Consultation operates in every state
- ▶ Most of funding from OSHA, but separate

6 Safety Professionals
6 Industrial Hygienists


Offices in Taunton,
Westboro, & Springfield




On-Site Consultation

- ▶ Free!
 - ▶ Confidential
 - ▶ Provided at the employers request
 - ▶ Primary focus on small, high hazard businesses
 - ▶ Manufacturing, construction, healthcare
 - ▶ No penalties or fines
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What we do:

- ▶ On-Site Surveys
 - ▶ Technical information via phone/email
 - ▶ Training for employers/employees
 - ▶ Provide model safety and health programs
 - ▶ Assist in evaluating, developing or maintaining an effective Safety and Health Program
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What we DON'T do:

- ▶ Issue citations or propose penalties
 - ▶ Tell OSHA where we go, what we see, who we talk with, etc.
 - ▶ Guarantee workplaces will “pass” an OSHA inspection
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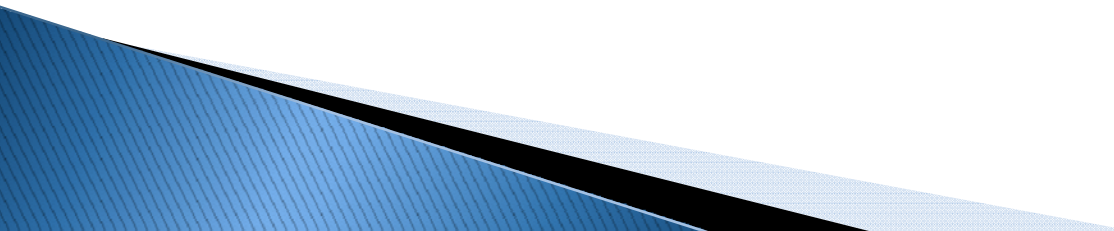
OSHA's National Emphasis Program:
Occupational Exposure to Isocyanates
CPL 03-00-017
Effective June 20, 2013

<https://www.osha.gov/SLTC/isocyanates/index.html>



Why is OSHA running this NEP?

Isocyanates are potent allergic sensitizers

- Occupational asthma (can be fatal)
 - Cough, shortness of breath, wheezing
 - Eye, nose, throat irritation
 - Allergic dermatitis, other skin issues
 - Health effects can be permanent
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What does OSHA look for?

Written Programs:

- Hazard Communication
 - Respiratory Protection
 - PPE
 - Recordkeeping
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OSHA also looks for:

Symptoms of isocyanate exposure

Fall issues: ladders, stairways, floor holes



Electrical issues– GFCI, exposed conductors

Eyewash units

NEP Inspection information to date:

171 inspections nationally, 16 in Region 1

18* serious violations in Region 1, \$36,418.

- Respiratory protection, HazCom, PPE, electrical, emergency planning



EARTHANE is green. As a product, EARTHANE is about as environmentally green as a foam insulation can get. It is water that makes this crucial difference. In place of chemical blowing agents like Freon and other highly reactive materials, EARTHANE uses water to make it turn from a liquid to a foam.

With over 20 years experience in home technologies, GreenSeal is Southern New England's leader for home energy solutions. GreenSeal provides a comprehensive package of planet-friendly energy solutions that includes: Spray Foam Insulation, Cellulose Insulation, Home Energy Audits, and energy-saving Replacement Windows.

Foam insulation has been used as a specialty product in the building industry for over 50 years. It is widely known to be a safer, more effective alternative to other insulators (e.g. fiberglass and cellulose).


So while all spray foam systems have some degree of “green bio-content” in their composition, it comes down to the level of bio-based and renewable materials in their polyol mixture that distinguishes which SPF product is truly greener than the other.



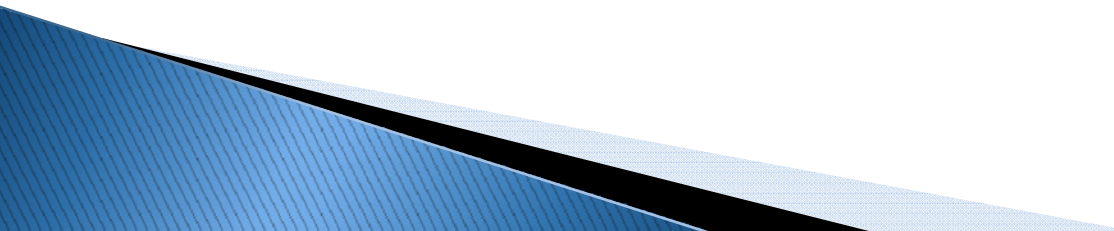
“We think Spray Foam is the 'Greenest' Insulation”
SprayFoam.com

Typical MSDS, Part “A”

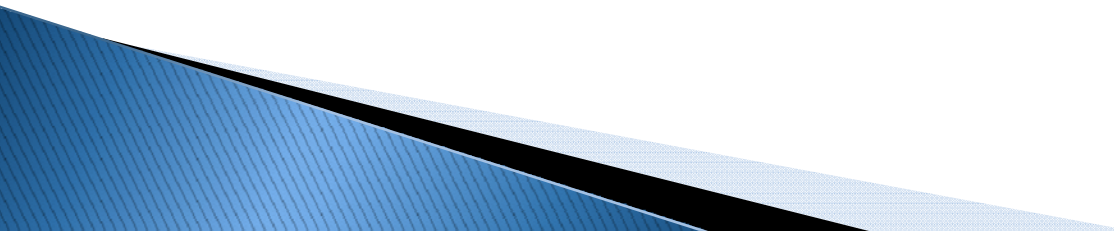
Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

- ▶ Polymeric Diphenylmethane Diisocyanate (pMDI)
50–60 %
 - ▶ 4, 4' Diphenylmethane Diisocyanate (MDI)
35–45 % (monomer)
 - ▶ 2, 4' Diphenylmethane Diisocyanate (MDI)
1–5 % (monomer)
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Isocyanate Health Effects:

- ▶ Irritation of eyes, skin, pulmonary system
 - ▶ Respiratory sensitization (asthma)
 - ▶ Dermal sensitization
 - ▶ Hypersensitivity pneumonitis
- 

Amine (Part B) Health Effects:

- Can trigger allergic reactions
 - Headache, nausea
 - Rapid heartbeat
 - Itching, hives
 - Corneal edema– “halo” vision
 - Hazy vision– “looking through smoke”
 - Dilated pupils
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“A” drums on right, “B” on left







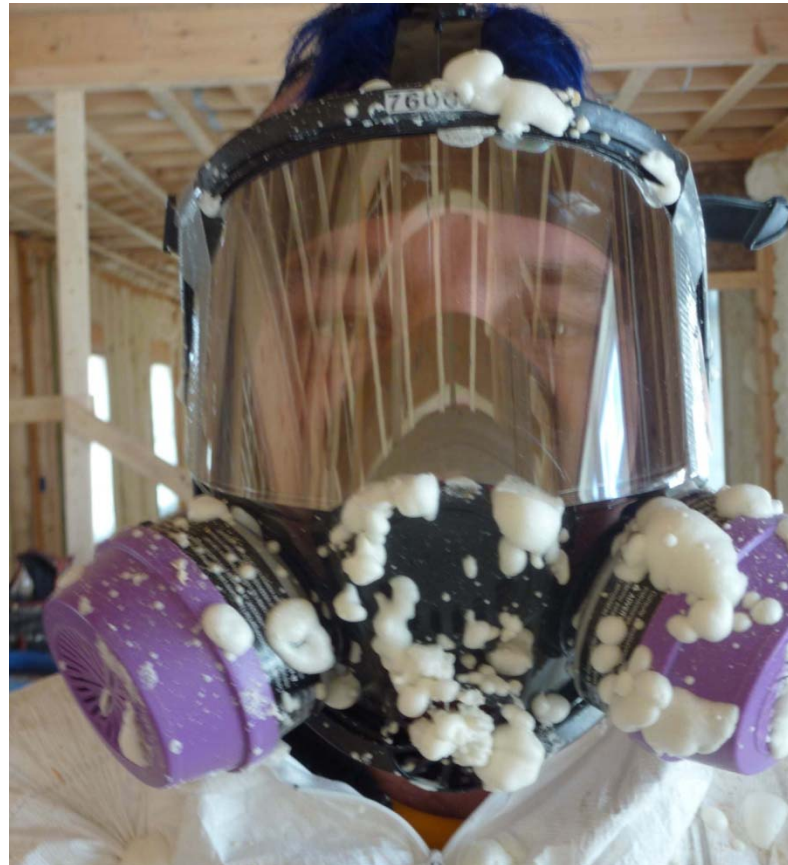




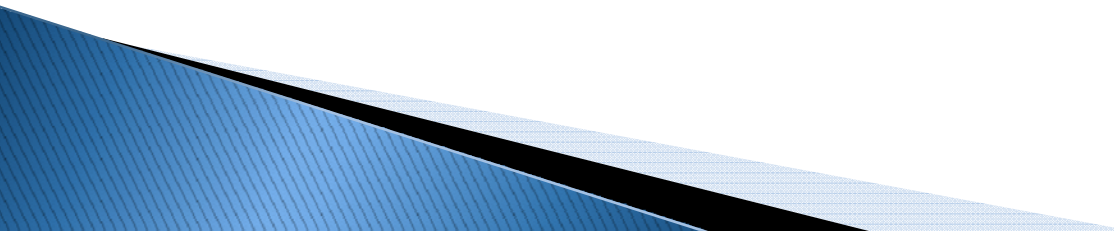


How do you get exposed?

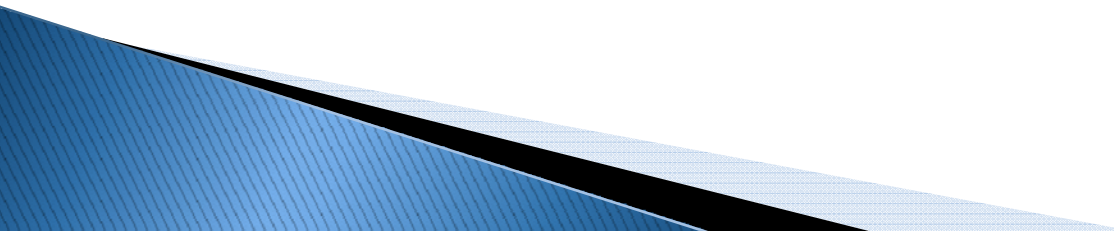
- ▶ Inhalation (vapor and particulate)
- ▶ Dermal
- ▶ Ingestion (unlikely)



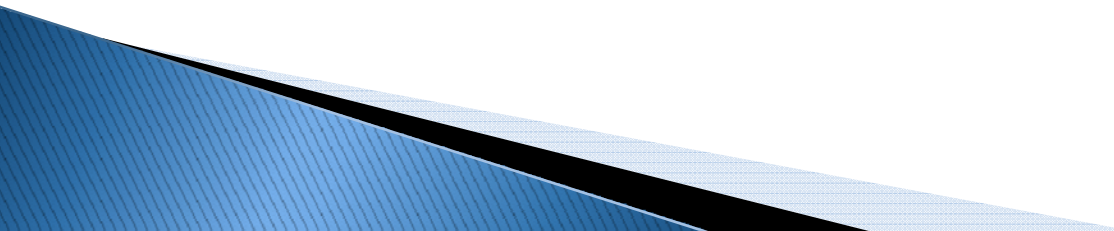
Typical jobsite hazards:

- ▶ No HazCom training
(non-English-speaking employees)
 - ▶ Inconsistent PPE use
 - ▶ Ladder safety issues
 - ▶ Trip and fall hazards
 - ▶ Other trades working in space
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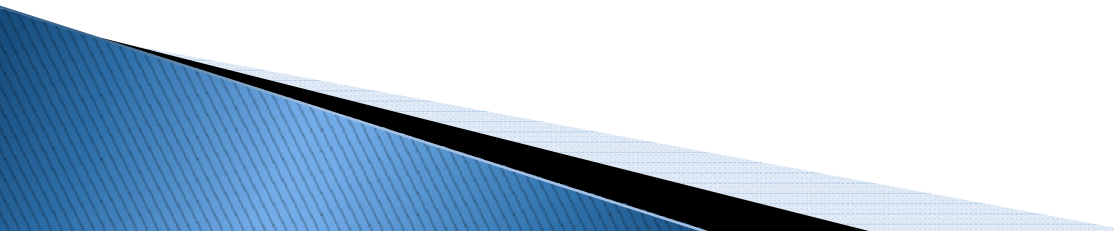
Respiratory hazards:

- ▶ No respirator program
 - ▶ No medical evaluation
 - ▶ No training
 - ▶ Beards
 - ▶ No cartridge changeout schedule
 - ▶ Removing respirators inside while working
 - ▶ Air supplied respirators should always be used for spraying, APRs *probably* OK for trimming (with daily cartridge changeout)
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Exposure Limits:

- ▶ OSHA PEL: 20 ppb (ceiling) for MDI monomer
 - ▶ No dermal exposure limits
 - ▶ No mixed isocyanate exposure limits except for Great Britain
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Air Monitoring results:

- ▶ Spraying: 3X PEL
 - ▶ Trimming: 1.5X PEL
 - ▶ Me: 0.1X PEL
 - ▶ Variables: enclosure, distance, ventilation, work practices, etc.
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Reentry after spraying:

A Proposed Methodology for Development of Building Re-Occupancy Guidelines Following Installation of Spray Polyurethane Foam Insulation

Brian F. Karlovich, Carl Thompson, Jim Lambach

Bayer MaterialScience

100 Bayer Road

Pittsb

CONCLUSIONS & RECOMMENDATIONS

ABST Based on the data developed through this work, the following re-occupancy times are prescribed for both Bayseal OC and Bayseal CC foams:

A re-oc
installa
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- 12 hours following the end of spraying for trades workers,
- 24 hours following the end of spraying for all others (e.g., residents, tenants, etc.)

The justification for these recommendations is as follows. At approximately 12 hours, the predicted airborne levels of all identified compounds were significantly less than the applicable OELs. At approximately 24 hours, the predicted airborne levels of all identified compounds were less than the CREL or 1/100 of the OEL. The only exception to this was for one amine catalyst

Fire safety?

“All organic foam insulations, regardless of whether they contain fire retardants, should be considered combustible and handled accordingly.

Certain precautions must be taken to minimize any potential for fire through accidental ignition in handling, storage, and use.”

Alliance for the Polyurethanes Industry (API)


The Massachusetts Division of Fire Safety (DFS) is investigating the causes of three house fires that were ignited while insulation contractors were installing spray polyurethane foam.

According to Tim Rodrique, the director of the DFS, investigators suspect that the fires were caused by the exothermic reaction that results from the mixing of the two chemicals used to make spray foam.



Trades performing hot work should comply with the National Fire Protection Association document, NFPA 51 B, as described by OSHA Standard 29 CFR 1910.252.

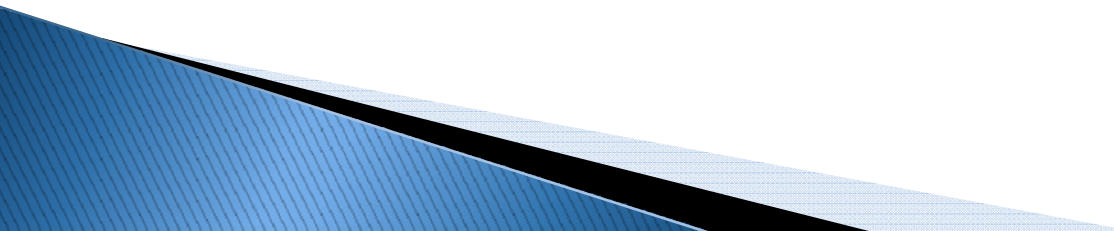
Trades performing hot work are required to observe the following restrictions:

- No open flames, cutting and welding torches, *high intensity heat sources*, and smoking materials are permitted in storage and application areas.
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From MSDS:

Do not mix liquid waste components together for disposal convenience. Mixed “A” and “B” components can create pressure within closed containers causing rupture or explosion.

Conditions also could exist for spontaneous combustion by improperly mixing “A” and “B” components.



► Questions?