US EPA & Federal Partners Efforts to Understand & Promote the Safe Use of SPF and Other Polyurethane Products

SPFA
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Presented by:
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EPA’s Concerns for Isocyanates and Polyurethane Products

- SPF and other polyurethane products can be mixed, applied, and/or manufactured on-site in a home, school, or other buildings.
- Side A – Diisocyanates (i.e., MDI, pMDI) in vapors, aerosols, and dust can cause:
  - Asthma, respiratory & breathing problems,
  - Skin, eye, and dermal irritation,
  - Sensitization, and
  - Can trigger severe asthma attacks in sensitized persons, even at very low levels.
- Side B - Polyol Blend
  - Amine and/or metal catalysts,
  - Flame retardants,
  - Blowing agents,
  - Surfactants,
  - Other proprietary ingredients, and
  - Reaction products, such as aldehydes.
SPF Stewardship Goals

- Avoidance of misleading or deceptive marketing claims.
- Communication of hazards, as well as benefits of SPF.
- Develop & adopt practices to prevent harmful exposures:
  1. Ensure workers are trained on hazards, processing and equipment, curing rates, performance, as well as communicating with others.
  2. Ensure worksite isolated and restricted to workers wearing appropriate personal protective equipment (PPE).
  3. Provide guidance on safe re-occupancy times and ventilation.
- Address research needs and data gaps.
EPA’s Approach to Best Practices

- Identify established practices for engineering or process efficiencies & control technologies to reduce exposures and environmental releases,
- Review existing worker training materials & practices addressing the use of PPE and control technologies, and
- Solicit recommendations for innovative practices from industry and field experts, capturing the following:
  - Identify job related tasks.
  - Safe work practice(s).
  - Exposure reduction/prevention potential of the safe work practice.
  - Other relevant information (i.e., pros and cons) associated with the safe work practice.
EPA Guidance

- ENERGY STAR Residential Insulation Partners
- Ventilation Guidance for SPF Applications/Automotive Shops available in Spanish translation.
- Checklists for SPF installers and communicating with homeowners available in Spanish translation.
- Availability of Safety Data Sheets
- Self-evaluation tool for contractors of practices and strategies to protect workers and promote the safe use of polyurethane products.
  - Periodic assessment tool of current practices to identify areas for improvement over key-operation phases.
  - Includes the following:
    - Over 175 Activities (safer workplace practices).
    - Potential for exposure & impact on worker exposure.
    - Revised website – easier to navigate
Ventilation Guidance for Spray Polyurethane Foam Application

Prevent Indoor Air Pollution

IEPA's Design for the Environment (DfE) Program

The Environmental Protection Agency (EPA) has a Design for the Environment (DfE) Program that promotes the use of sustainable products and practices to protect the environment and human health. One of the key goals of the DfE Program is to reduce indoor air pollution and improve indoor air quality. This can be achieved by using materials and products that are free from volatile organic compounds (VOCs) and other harmful chemicals. The DfE Program provides guidance on how to select and use sustainable products and practices to improve indoor air quality and protect human health.

EPA's National Center for Environmental Protection

The EPA's National Center for Environmental Protection is responsible for protecting human health and the environment. This includes preventing pollution, regulating hazardous waste, and reducing the effects of climate change. The National Center for Environmental Protection works to ensure that the United States has clean air, water, and land, and a healthy environment for all people.

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Contractor & Contractor-Client Communications Checklists

Contractor Checklist: Guide to Safer Workplace Practices for Installing High-Pressure, Two-Component Spray Polyurethane Foam (SPF) Insulation

This checklist is aimed at helping spray polyurethane foam (SPF) professional contractors protect themselves, workers and others. This checklist was prepared as a voluntary aid to protect against potential risks from SPF; it is not a regulatory compliance tool. However, some of the best practices included in the checklist may be required under local, state or federal worker protection or other regulations.

Name of Firm: ___________________________ Date: ___________________________

Brief description of work, locations where SPF will be installed, and SPF insulation products to be used. Include manufacturer, product names, system numbers, seasonal blends, and lot numbers:

________________________________________________________________________

Worker name(s) and job title(s) on site i.e., project manager, installers, and assistants:

________________________________________________________________________

Accreditation, training, and certification credentials:

________________________________________________________________________

To ensure that the SPF project manager, installers, and assistants discuss the following health and safety, training, and hazard communication practices, check all that apply:

Ongoing Activities

☐ Ensure that all workers have completed the appropriate training for health and safety, equipment, and installation prior to beginning work on site and that they carry wallet-size cards to demonstrate that they have passed testing and certification requirements. For example, SPF training is provided by the Spray Polyurethane Foam Association (SPFA) Professional Certification Program, the Center for Polyurethanes Industry (CPI), Air Barrier Association of America (ABAA), Building Performance Institute (BPI), and individual SPF producers.

☐ Maintain onsite a binder of Safety Data Sheets (SDSs), equipment operating manuals, contracts, technical product sheets, emergency contacts, and best practices materials e.g., bulletins, fact sheets, or posters. Ensure that workers are familiar with the information contained in them. A written hazard communication program should be in place for the worksite and included in the binder.

☐ Maintain an on-site copy of the contractor’s written safety plan. Meet all OSHA, state, and local safety requirements for installers and for other workers.

Contractor-Client Communications Checklist: Guide to Professionally Installing High-Pressure, Two-Component Spray Polyurethane Foam Insulation

This checklist provides professional contractors and clients, including homeowners and other building occupants, a set of topics to discuss so that the client understands what to expect when a professional contractor installs high-pressure, two-component spray polyurethane foam (SPF) insulation. This checklist was prepared as a voluntary aid to protect against potential risks from SPF; it is not a regulatory compliance tool. However, some of the best practices included in the checklist may be required under local, state or federal worker protection or other regulations.

Name of Firm: ___________________________ Date: ___________________________

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Worker name(s) and job title(s) on site i.e., project manager, installers, and assistants:

________________________________________________________________________

Accreditation, training, and certification credentials:

________________________________________________________________________

Prepare for your discussion with the client by reviewing the following health and safety, training, and hazard communication practices, check all that apply:

Before Application

☐ Work being performed, including application and post-application activities, potential health and safety hazards, and exposure reduction strategies utilized for this work location. Discuss with the client why workers wear protective clothing and respiratory protection; why workers isolate the jobsite, and what to expect from cleanup procedures.

☐ Training and certification credentials of the project manager, installers, and assistants. For example, contractors certified by the Spray Polyurethane Foam Association (SPFA) Professional Certification Program carry wallet-sized cards to verify that they have passed testing and certification requirements. SPF training is also provided by the Center for Polyurethanes Industry (CPI), Air Barrier Association of America (ABAA), Building Performance Institute (BPI), and individual SPF producers.

☐ Potential health and safety hazards of all chemicals and processes that are part of the SPF installation. Workers and clients should review labels, Safety Data Sheets (SDSs), technical bulletins, and manufacturer recommendations and installation instructions.

☐ Plans to restrict access to the work zone for bystanders, residents, and other building occupants and
Summary

- The SPF industry needs to ensure:
  - There is comprehensive and clear hazard communication for all SPF users – applicators, assistance, other trades, do-it-yourselfers, consumers, and other decision-makers (i.e., building managers, etc.).
  - Consumers need clear hazard and use warnings, such as through product labeling and communications with commercial contractors.
  - The work site is restricted to only those wearing appropriate personal protective equipment.
  - Quality control - avoid installation of off-spec, poor performance polyurethane materials. (see saferproducts.gov for complaints of off-gas persistence).
  - Guidance is provided on re-occupancy time & long-term ventilation (H-VAC) needs.
  - Marketing claims are accurate and balanced.
Where to Get More Information?

- EPA’s DfE SPF website: search “EPA SPF”
- FTC Green Guides: [http://www.ftc.gov/os/2012/10/greenguides.pdf](http://www.ftc.gov/os/2012/10/greenguides.pdf)
- International Research Conference (Isocyanates & Health: Past, Present, & Future, April 2013, Bolger Center in Potomac, MD), [http://www.isocyanates2012.org/content/home.cfm](http://www.isocyanates2012.org/content/home.cfm)
- ASTM Methods (D22.05) for measuring chemical emissions from Spray Polyurethane Foam.
- Project Coordinators: Carol Hetfield; 202-564-8792; hetfield.carol@epa.gov & Katherine Sleasman; 202-564-7716; sleasman.katherine@epa.gov
National Emphasis Program
– Occupational Exposure to Isocyanates
CPL 03–00–017

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US DOL–OSHA
Tampa, FL Area Office
Overview

NEP – Where we are:
Inspection summary
Top violations cited

Future Steps – what’s down the road?
National Emphasis Program (NEP) for Isocyanates

Goal:
To reduce occupational illnesses, injuries, and deaths associated with exposure to isocyanates and to raise employer and employee awareness of adverse health effects.
NEP Inspections
(federal data only 6/20/13–12/31/15)

678 total NEP inspections

334 Programmed Inspections

344 Unprogrammed Inspections

- Inspection initiated by NEP primary or secondary list
- Inspection initiated by other means (complaint, other NEP, referral)
Inspections by Ownership

General Industry – 602

Construction – 76
Top 10 NAICS Inspected

- Automotive Body, Paint, and...: 201
- All Other Plastics Product...: 88
- Regulation, Licensing, and...: 36
- Boat Building: 33
- All Other Miscellaneous Fabricated: 31
- Painting and Coating Manufacturing: 31
- Cut Stone and Stone Product...: 29
- Drywall and Insulation Contractors: 29
- Urethane and Other Foam Product...: 20
- General Automotive Repair: 19
## Top 10 Inspected Industries by NAICS for all Years of Isocyanate NEP

<table>
<thead>
<tr>
<th>Number</th>
<th>NAICs</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>201</td>
<td>811121</td>
<td>Automotive Body, Paint, and Interior Repair and Maintenance</td>
</tr>
<tr>
<td>88</td>
<td>326199</td>
<td>All Other Plastics Product Manufacturing</td>
</tr>
<tr>
<td>36</td>
<td>926150</td>
<td>Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors</td>
</tr>
<tr>
<td>33</td>
<td>336612</td>
<td>Boat Building</td>
</tr>
<tr>
<td>31</td>
<td>332999</td>
<td>All Other Miscellaneous Fabricated Metal Product Manufacturing</td>
</tr>
<tr>
<td>31</td>
<td>325510</td>
<td>Paint and Coating Manufacturing</td>
</tr>
<tr>
<td>29</td>
<td>327991</td>
<td>Cut Stone and Stone Product Manufacturing</td>
</tr>
<tr>
<td>29</td>
<td>238310</td>
<td>Drywall and Insulation Contractors</td>
</tr>
<tr>
<td>20</td>
<td>326150</td>
<td>Urethane and Other Foam Product (except Polystyrene) Manufacturing</td>
</tr>
<tr>
<td>19</td>
<td>811111</td>
<td>General Automotive Repair</td>
</tr>
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Number of Samples vs. Samples with Isocyanates Detected

Number of Samples

- Hexamethylene Disocyanate: 825
- 1,6-Hexamethylene Disocyanate: 683
- Toluene-2,6-Disocyanate: 311
- Polymeric MDI (PAPI): 390
- Isophorone Disocyanate: 199
- Methylene-bis(4-Cyclohexylisocyanate): 135

Numbers of Samples

Samples with Detected Isocyanates
Violations cited from Isocyanate NEP inspection

<table>
<thead>
<tr>
<th>Violations issued</th>
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<tbody>
<tr>
<td>6/20/13–12/31/15</td>
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<td>(federal data only)</td>
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2675 Total Violations Issued
(All Hazards)

• Serious – 1943
• Willful – 0
• Repeat – 32
• Other – 673
Top Standards Cited

1910.134 Respiratory Protection (857)

1910.1200 Hazard Communication (526)

1910.107 Flammable & Combustible Liquids (142)

1910.132 Personal Protective Equipment (116)

1910.305 Electrical Wiring Methods (62)
Top Violations Cited

- **Personal protective equipment**
  - 1910.132(d)(2)–Workplace hazard assessment

- **Respiratory protection**
  - 1910.134(c)(1)–Respirator Program
  - 1910.134(f)(2)–Fit–tested before use
  - 1910.134(d)(1)(iii)–Evaluation of Respiratory Hazards
  - 1910.134(f)(1)–Fit–testing pass QLFT or QNFT
  - 1910.134(g)(1)(i)(A)–Facial hair

- **Hazard Communication**
  - 1910.1200(e)(1)–Hazard Communication Program
  - 1910.1200(h)(1)–Information and Training Program
  - 1910.1200(h)(3)(iv)–Training on SDSs and labels
PPE & Respiratory Protection Violations
29 CFR 1926 Subpart AA – Confined Spaces in Construction

- New Standard published – May 4, 2015
  - Effective August 3, 2015
  - Covers confined or enclosed spaces
    - Example – Crawl Spaces and Attics
  - Temporary enforcement policy thru March 8, 2016 (covers residential construction work only)
    - No citations if good faith efforts made and have provided training

- Confined space means a space that:
  1. Is large enough and so configured that an employee can bodily enter it;
  2. Has limited or restricted means for entry and exit; and
  3. Is not designed for continuous employee occupancy.
Future Steps – What’s Next?

- Outreach & Educate
- Evaluation of NEP
- Determination to continue the NEP or not
Questions??

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