Spray Polyurethane Foam (SPF) Health & Safety Considerations
Progress & Challenges

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Federal SPF Workgroup

- EPA
- NIOSH
- OSHA
- CPSC
- ATSDR

Industry Workgroup

- ACC Center for the Polyurethanes Industry (CPI)
- Spray Polyurethane Foam Alliance (SPFA)
- Individual Companies
SPF Goals

- Accurate & comprehensive communication of hazards, as well as benefits of SPF.
- Avoidance of misleading and/or deceptive marketing claims.
- Ensure worker training on hazards, equipment, curing, performance, as well as communicating with others.
- Develop & adopt practices to prevent harmful exposures.
- Ensure premises are restricted to workers wearing appropriate personal protective equipment (PPE).
- Provide guidance on safe re-occupancy times.
- Address exposure assessment research needs.
- Ensure homeowners, teachers and students, and the general public are not exposed to hazardous chemicals during and after SPF applications.
Progress

- Hazard Communication
  - Federal - EPA SPF Site, OSHA Green Jobs site, H&S tips postcard, NIOSH ALERTS, DOE WAPTAC, ENERGY STAR Insulation Partnership enhancements (see slide)
  - Industry - Product stewardship activities:
    - fact sheets, technical bulletins, web portals
  - Others - Spray Foam Magazine, blogs, Green Building webinars

- Training
  - Industry - on-line H&S training & testing course, SPFA Accreditation classes, conferences training, manufacturer-contractor training, etc.
Energy Star Residential Partners

- November 2011, EPA revised requirements for residential insulation manufacturers to participate in Energy Star.

- Insulation manufacturers will need to provide:
  - Clear and specific safe installation practices and personal protective equipment.
  - Specific information on chemical reactants.
  - Safe re-entry (re-occupancy) times for home occupants after installation.
  - MSDS for chemical reactants with complete hazard information listed.

- All products must be 3rd party certified for R-values and flame/smoke spread.
Progress

- Isolating the Work Site
  - Many contractors communicate upfront with clients and other trades to limit access during application.
  - CPI’s Health & Safety Product Stewardship Workbook contains guidance for discussions on this topic with building owners and occupants.
  - The December 2010 & 2011 Spray Foam magazine has guidance on containment and ventilation.
  - Developed guidance on simple exhaust ventilation design principles.
    
Progress

- Exposure Research
  - Validating total reactive isocyanate groups (TRIG) monitoring method (DAN method).
  - Developing ASTM Method (D2205) for measuring chemical emissions.
  - Evaluating the impact of incremental changes in ventilation rates on SPF emissions.
  - Evaluating dust from trimming operations.
  - Study – Impact of changes in ventilation rates on the concentration of SPF vapor & particulates emitted
  - International Research Conference(Isocyanates & Health: Past, Present, & Future, November 2012 at NIH Natcher Conference Center in MD)
EPA’s MDI and TDI Action Plans

- EPA’s focus:
  - Exposures to the consumer or self-employed worker while using products containing uncured (unreacted) MDI, TDI and related polyisocyanates (e.g., spray-applied foams, coatings, adhesives, and sealants)
  - Incidental exposures to the general population while such products are used in or around buildings, including homes or schools.

- Summary of proposed actions:
  - Continue to work with SPF partnership
  - Issue a “8(c)” data call-in of allegations of adverse health effects
  - Initiate a “8(d)” request for industry unpublished health and safety studies.
  - Issue a Significant New Use Rule for uncured TDI in consumer products.
  - Consider initiating a test rule to require exposure monitoring studies in consumer products, and require studies on uses and exposures by self-employed workers.
  - Consider other risk management regulatory and non-regulatory actions.
Challenges

- **Training**
  - Ensure that all applicators and helpers receive comprehensive health & safety, curing rate, equipment & process, including “hands-on” training.

- **Isolating the Worksite**
  - Innovative solutions to prevent chemical migration should continue to be developed and shared to ensure industry-wide practice.
Challenges

- Establishing Re-Occupancy Times
  - Manufacturers estimate 23-72 hours after application for two-component high pressure SPF system to fully cure.
  - ASTM Committee development of standard method to evaluate SPF product emissions of isocyanates, amine catalysts, and other volatile compounds.
  - One company has shared emission data on its SPF product/application
  - Emissions data on other product formulations/applications are needed.
  - Other factors to consider include:
    - temperature, humidity
    - applicator technique, experience, equipment
    - accurate mixing/proportioning A- and B-sides
    - ventilation and containment
Challenges

Avoid off-spec, poor performance material installation.
- EPA/CPSC have received some homeowner complaints of off-gas persistence after SPF installation

How are Problems Prevented?
- Source reduction
- Ventilation, exposure controls, PPE – *protect your lives and livelihood*
- Quality control - *do it right the first time*

How are Problems Addressed?
- Product emissions testing
- Ventilation/adequate air exchange – *seal tight, ventilate right*
- Remediation techniques
- Green Jobs, not just one-time installation but provide long-term full service IAQ and HVAC evaluations and recommendations, considering seasonal, geographical, and usage variations.
Government Websites

EPA Existing Chemicals Program - http://www.epa.gov/oppt/existingchemicals/pubs/enhanchems.html

NIOSH - http://www.cdc.gov/niosh/topics/isocyanates/
NIOSH Prevention through Design - http://www.cdc.gov/niosh/topics/ptd/


Industry Websites

SPFA: http://www.spraypolyurethane.com

CPI: http://www.sprayfoam.org

Spray Foam magazine:
http://www.sprayfoam-mag.com
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