

Spray Polyurethane Foam Insulation: Health and Safety Recommendations for Consumers

This health and safety fact sheet compiles and summarizes hazard communication materials from the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), National Institute for Standards and Technology (NIST), American Chemistry Council (ACC), and American Society for Testing and Materials (ASTM). For several years the U.S. Consumer Product Safety Commission (CPSC) has collaborated with these organizations and has been active in developing ASTM standards. The links to the health and safety websites of these organizations are provided at the end of this document.

Spray Polyurethane Foam (SPF) is an effective insulation product that is widely used. SPF is used in new construction, additions, and renovations. Consumers may be exposed to chemicals released from SPF during and after application to their homes. This fact sheet provides information intended to help ensure the safety of homeowners.

There are several types of SPF products. High-pressure systems and low-pressure kits consist of two-parts that are mixed during application. These products contain isocyanates in Side A and a mixture of polyols, amine catalysts, flame retardants, blowing agents, and surfactants in Side B. Smaller one-component systems are also available in aerosol cans.

Effective communication among trained and certified contractors and homeowners is essential.

- Contractors should use safe work practices to reduce or prevent exposures to homeowners at every stage of SPF installation.
- Homeowners should discuss safety protocols with their contractor and vacate the premises during and after installation for at least 24 hours. General guidance from industry suggests evacuating the premises for 24 hours. ASTM research shows variable emissions related to types of SPF and building conditions.

What should homeowners or building occupants do if they have concerns?

Homeowners and building occupants, under some circumstances, have reported that they continue to smell odors or experience respiratory symptoms after SPF application. If this occurs, consumers should do the following:

- Seek immediate medical attention if you experience breathing problems or other adverse health effects.
- Consumers can, and should, file an online Consumer Product Incident Report with the U.S. Consumer Product Safety Commission on the [SaferProducts.gov](https://www.saferproducts.gov) website if SPF material is considered to be the source of a problem.
- Work with the contractor to identify the problem or consider hiring an independent expert, such as a qualified Indoor Air Quality (IAQ) consultant, to diagnose sources of indoor air issues.
- Contact the contractor and/or product manufacturer to request help in solving the problem if the SPF material is shown to be the source of the problem.

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- Contact your state or local consumer protection office or contractors' licensing board if concerns are not resolved with the contractor and/or product manufacturer.

Homeowners have considered removal of SPF under some circumstances. There are no standard processes for removal and/or remediation of misapplied SPF. Note, disturbing SPF material might generate dust or hazardous materials if done improperly, especially if using processes that might heat these materials. The checklist below is intended for use during product installation, but may also provide guidance for removal.

What should homeowners or building occupants consider if they plan to hire a professional SPF applicator?

SPF insulation is widely used throughout the United States. Industry and government organizations have made health and safety information available because of increased use. Make sure your contractor explains the nature of the specific product being applied in your home and how it will be installed. The recommendations below are summarized from EPA's contractor-client communication checklist and ACC's homeowners' "What to Expect" website. Follow the steps in the checklist below:

- ✓ Discuss re-occupancy guidance with your contractor before the job starts:
 - Vacate the building, and find a place to relocate the building occupants, including pets, during installation.
 - For schools, do installation while school is out of session and all occupants are off premises.
 - Exercise caution when determining a safe re-entry time with your contractor.
 - Some manufacturers recommend worker re-entry after 24 hours following application without the use of personal protective equipment (*e.g.*, respirators and gloves). Re-occupancy for residents and other building occupants can vary, based on the type of product, the type of home, and whether sensitive individuals, such as children and the elderly, are present. Residents should vacate the premises for at least 24 hours.
- ✓ Learn about the product being installed in your home.
 - Obtain copies of product literature.
 - Become informed of potential health effects and safe handling procedures for chemicals and products being used or installed in home/building by contractors.
 - Individuals with a history of skin conditions, respiratory allergies, asthma, or prior isocyanate sensitization should review product information carefully when considering SPF products; and if necessary, consider alternative insulation products.
- ✓ Ask your contractor questions, such as:
 - Where will SPF be installed?
 - Due to performance variability, what is the appropriate time of year to install SPF in our area, and what weather conditions (temperature and humidity) might impact the installation of SPF?
 - What should I expect at each stage of the installation process?
 - How do you plan to isolate and ventilate the work area?
 - What other safety precautions will you take?
 - Review EPA's contractor-client communications checklist.

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- ✓ Do your research when selecting a contractor:
 - Ensure your contractor has received appropriate training.
 - Verify the contractor's insurance and licenses.
 - Check the contractor's references.

What homeowners or building occupants should consider if they plan to apply SPF themselves using a Do-it-Yourself kit?

Read more information on the types of SPF products and read the safety data sheet to obtain information for proper procedures and appropriate protections specific to each type of application. The two-component, high-pressure kit is a professional system and should only be used by a trained applicator. Two-component, low-pressure kits and one-component foam are also used by professional applicators, largely for air sealant purposes or to fill holes and gaps. However, these types of products are often referred to as "DIY" products because they are available to consumers. Note, the same precautions should be taken as with professional use.

Homeowners who decide to conduct a DIY project using the two-component, low-pressure kit, or the one-component can of spray foam, should educate themselves on safe work practices, techniques, and precautions that professionals would use. You have the ultimate responsibility for the health and safety of yourself, your family, or those in your care.

- Become informed of potential health effects and safe handling procedures for chemicals and products you are using.
- Consider whether DIY use of these products is appropriate, or whether you should consider having a trained professional install the products.
- Individuals with a history of skin conditions, respiratory allergies, asthma, or prior isocyanate sensitization should carefully review product information when considering the use of SPF products. You may want to consider alternative insulation.
- Manufacturers recommend in their isocyanate safety data sheets that individuals undergo medical surveillance before working with these materials. Note: individuals with a history of medical conditions as described above will be restricted from work with isocyanates.
- Note, these products are inappropriate for creative uses, such as science or arts and crafts projects. These products should not be used around children.

Where can I find more important health and safety information and guidance?

Federal Agency Websites and Resources

[EPA's Spray Polyurethane Foam \(SPF\) Insulation and How to Use it More Safely](#)

[OSHA's Green Job Hazards: Weather Insulating/Sealing - Chemical Hazards - SPF/Isocyanates](#)

[NIOSH-Workplace Safety and Health Topics Isocyanates](#)

[EPA's Best Practices and Safety Tips for Weatherizing with SPF](#)

[EPA's Contractor-Client Communications Checklist: Guide to Professionally Installing High-Pressure, Two-Component SPF Insulation](#)

[EPA's Ventilation Guidance for SPF Application](#)

[NIST's Characterization of Emissions from a Non-Ideal SPF Sample](#)

[NIST's Characterization of Emissions from SPF - Final Report to U.S. Consumer Product Safety Commission](#)

[Department of Energy Insulation Fact Sheet](#)

Industry and Related Resources

[ACC: Spray Polyurethane Foam Health + Safety](#)

[ACC: Types of Spray Polyurethane Foam \(SPF\)](#)

[ACC: Homeowners: SPF Health + Safety: What to Expect](#)

[ACC: Spray Polyurethane Foam Health + Safety: Potential Health Hazards of SPF Chemicals](#)

[ACC: Information Sheet on Reentry and Re-occupancy Times when Installing SPF Insulation and Sealants](#)

[ASTM Symposia Papers and STPs - STP1589, Developing Consensus Standards for Measuring Chemical Emissions from SPF Insulation](#)

[ASTM: Overview of STP1589](#)

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