

Information Sheet on Reentry and Reoccupancy Times when Installing Spray Polyurethane Foam Insulation and Sealants

It is critical for applicators, helpers, and adjacent workers who may enter the spray polyurethane foam (SPF) application area while the foam is being applied and curing, to follow responsible work practices. Adherence to reentry and reoccupancy times limits exposure to SPF chemicals during the curing process. Reentry times are intended to protect other trade workers that may be working in or around an area where SPF has been applied. Reoccupancy times are intended to protect building occupants or residents.

SPF Basics

The process of installing SPF has been extensively characterized, and when professional applicators follow appropriate safety measures, the potential hazards associated with SPF chemicals in the workplace can be effectively managed through the use of engineering controls, personal protective equipment (PPE), and restricting unauthorized access to the SPF work zone. If risks are improperly managed, workers and building occupants could be exposed to potential hazards present in aerosol mists and vapors. In addition to the release of airborne SPF chemicals during spray application, certain components may emit from newly installed SPF insulation products for a period of time following installation.

Containment, ventilation, restricting access to the work area or structure, and the use of PPE can be used to reduce the potential for exposure among applicators, helpers, and other trade workers who may be working in areas adjacent to SPF application. For occupants, chemical emissions can be minimized if the installation is done properly and appropriate air changes per hour are maintained within the living areas of the structure. Because the potential for exposure to SPF chemicals is time dependent, and decreases over time as the SPF cures, SPF manufacturers list reentry and reoccupancy times as guidance for when it is considered safe to reenter or reoccupy a building. Refer to the products' safety data sheet (SDS), training materials, or product application manuals for additional guidance.

Defining Reentry and Reoccupancy

Reentry – the time elapsed after installation of SPF in a building when it is deemed safe for applicators, helpers and other trade workers to enter the building and resume operations without the need for PPE.

Reoccupancy – the time elapsed after installation of SPF insulation or sealant in a building when it is deemed safe for building occupants or residents to resume normal building operations and activities.

Guidance for Reentry and Reoccupancy Times

Reentry and reoccupancy times depend on a number of factors including the SPF product being installed, the chemical components within the SPF formulation, how well the work area was contained and ventilated during and immediately after SPF application, the amount of foam applied per volume of space, temperature, humidity, application pressure, cure time, and the air exchange rate (ACH) within the structure after the SPF is installed.

Based on the SPF installer documenting many of the above variables and the findings from post application chemical emission studies performed on the SPF product¹, each SPF manufacturer will be best informed to recommend reentry and reoccupancy time periods for its product.

Currently, a large-scale spray room method and a practice describing the use of computer simulation modelling are under development at ASTM Subcommittee D22.05 on Indoor Air. Once finalized, these standards can be used to determine reentry and reoccupancy times.

While variations may be needed or appropriate, many manufacturers suggest a 24-hour reoccupancy time for building occupants or residents after the application of high-pressure SPF when recommended ventilation is used. This time period was developed using field studies, computer modeling, and chamber testing to monitor emissions of SPF chemicals across several studies for a generic high-pressure SPF formulation and application scenario. Reentry times are generally significantly shorter than reoccupancy times because reoccupancy times are developed with the potential duration of exposure and vulnerable subpopulations, such as children or elderly persons, in mind.

Applicators installing low-pressure SPF sealants should follow the instructions on the product label and ensure the required levels of ventilation are present in the work space.

Conclusion

Reentry and reoccupancy times limit exposure to SPF chemicals during the SPF curing process. Reentry times are intended to protect other trade workers that may be working in or around an area where SPF has been applied. Reoccupancy times are intended to protect building occupants or residents. Reliable reentry and reoccupancy times are informed by factors including a manufacturer's individual product formulations, and data to support them, as well as practices that ensure a proper installation of the insulation product and a minimum air exchange rate within the structure. Many in the industry suggest a 24-hour reoccupancy period as general guidance. This example is provided with a relatively generic product in mind and is conservative to better cover a variety of products and application scenarios. When using SPF systems, refer to the manufacturer's SDS, training materials, or product application manuals to determine the reentry and reoccupancy time for the product being installed.

¹Post application emissions can be measured using ASTM D8142 – 17 Standard Test Method for Determining Chemical Emissions from Spray Polyurethane Foam (SPF) Insulation using Micro-Scale Environmental Test Chambers. Available at: <https://www.astm.org/Standards/D8142.htm>.