TECH TIP # 17

Jobsite Ventilation, Re-occupancy & Re-entry times for Open & Closed cell Spray Polyurethane Foam

Because of its superior thermal performance and air-sealing attributes, spray foam insulation continues to grow in popularity. Special attention is paid to the health and safety of the workers who install these products, the other trades who may be present during or after such installations, and the homeowners/occupants who will reside in the structures post-installation.

BASF has been a manufacturer of the liquid chemicals used to create spray foam for over 35 years. A-side" (ISO) and "B-side" (Resin) components are distributed and sold to professional spray foam contractors who then process the two liquid components through specialized equipment that creates the foam plastic insulation. Proper "personal protective equipment" (PPE) must be worn continually by all persons in or near the application area, throughout the application process. Experienced BASF employees regularly discuss and provide "hands-on" safe-use training with representatives from our contractor customer base. BASF takes health and safety concerns very seriously and has gone to great lengths to promote professional contractor training in the proper application of its products.

Sprayers, helpers, and trimmers should take health and safety concerns into account when being in the presence of the application of spray polyurethane foam (SPF). In addition to mechanical ventilation, full face air supplied respirators, disposable chemical resistant clothing and gloves should be worn during the application of open or closed cell SPF. Helpers and trimmers near the SPF applicator must wear the same PPE as the applicator. If the foam has cured and the SPF applicator is not applying foam, disposable clothing, gloves and a dust respirator is appropriate.

The industry recognizes 24 hours after spraying has stopped as a valid re-occupancy/ re-entry guideline for high pressure processed SPF as a rule of thumb, unless otherwise suggested by the particular manufacturer.

The Safety Data Sheets for the BASF liquid compounds and information on our products can be found at www.spf.basf.com and should also be understood and followed. Risk management for specific jobs as outlined or suggested by OSHA should be planned out and documented by the professional and experienced applicator selected for the project.

Safe-use Guidelines, Handling, Exposure and Re-occupancy Data, and much more can be found at:

- American Chemistry Council
  - Products, Resources, and Document Library (also available in Spanish) https://polyurethane.americanchemistry.com/Products-Resources-and-Document-Library/
  - Center for the Polyurethanes Industry (CPI) - Guidance on Best Practices for the Installation of SPF https://polyurethane.americanchemistry.com/Spray-Foam-Coalition/Guidance-on-Best-Practices-for-the-Installation-of-Spray-Polyurethane-Foam.pdf
- NIOSH Respirator Selection Logic:
  - https://www.cdc.gov/niosh/docs/2005-100/pdfs/2005-100.pdf?id=10.26616/NIOSHPUB2005100
- OSHA standards:
  - Hazard Communication: 29 CFR 1910.1200 and 1926.59
  - Respiratory Protection: 29 CFR 1910 Part 134
  - Personal Protective Equipment: 29 CFR 1910 Part 132-138 and 1926.95
  - Ventilation: 29 CFR 1910.94 and 1926.57
- Spraypolyurethane.org
  - Health & Safety Guidelines for SPF Professionals https://www.spraypolyurethane.org/professional-contractors/health-and-safety-guidelines/
- Spray Polyurethane Foam Alliance
  - Health & Safety http://www.sprayfoam.org/h-s
- U.S. Environmental Protection Agency
  - Best practices for the use of containment and ventilation techniques "Ventilation Guidance for Spray Polyurethane Foam Application": https://www.epa.gov/saferchoice/ventilation-guidance-spray-polyurethane-foam-application

For any additional information about BASF spray foam systems, please visit www.spf.basf.com.

For a referral to an applicator in your area or to speak with a technical sales representative, please call 800-706-0712 x2.

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BASF Corporation has worked closely with the American Chemistry Council's Center for the Polyurethane Industry (ACC-CPI) through all phases of the industry testing and analysis of spray polyurethane foam (SPF) emissions and effects of ventilation rates. While these studies are ongoing, BASF's Product Stewardship team, working with other industry partners, proceeded with jobsite analysis of emissions on BASF spray foam compounds, and the effect on those emission levels with added jobsite ventilation. This technical tip is a quick reference guide to ventilation requirements for modified re-entry/occupancy times for BASF Open-Cell (OC) and Closed-Cell Foam (CC) versus industry standards.

Recommendations and Conclusions from BASF spray foam emission and ventilation studies:
BASF suggests that the Spray Foam Coalition, *Ventilation Considerations for Spray Polyurethane Foam* be followed when processing and applying BASF liquid spray foam compounds. Web link is as follows:
http://polyurethane.americanchemistry.com/Spray-Foam-Coalition/Guidance-on-Ventilation-During-Installation-of-Interior-Applications-of-High-Pressure-SPF.pdf

In the ACC-CPI website you will find two open-cell SPF studies conducted by BASF, "Spray Polyurethane Foam Monitoring and Re-Occupancy of High Pressure Open Cell Applications to New Residential Constructions" and "Open Cell Monitoring, a Follow-up After Reformulation." BASF has also conducted numerous closed-cell SPF studies with data supporting that re-entry can be allowed in less time frames. It is within these studies that the suggested values of the table below were extrapolated. Consider that jobsite conditions vary. The job specific safety plan should determine what will provide a safe worker condition, including ventilation strategy.

While the industry standard is recognized as 24 hours after spraying has stopped for valid re-occupancy/re-entry guideline for high pressure processed spray foam, BASF has conducted studies that indicate **if** the application is contained **and** the area is power ventilated at a minimum rate of 20 ACH during and after the application, re-entry times can be less than 24 hours, following the guidelines seen below.

BASF Product	Re-entry	ACH*	Natural	Re-occupancy
Enertite OC Series	1 hour	20 ACH	4 hours	24 hours
Spraytite CC Series	8 hours	20 ACH	24 hours	24 hours
Walltite CC Series	2 hours	20 ACH	8 hours	24 hours
*Ventilation rates based upon ventilation used DURING the time of application and for the time frame listed.				

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