



AMBI-TITE 204 (HFO) is a rigid, closed cell spray polyurethane foam (SPF) insulation system. **AMBI-TITE 204 (HFO)** uses zero ozone depleting potential (ODP) blowing agents. The controlled chemical reaction of **AMBI-TITE 204 (HFO)** allows for a smoother surface and more uniform application over a wide temperature range. **AMBI-TITE 204 (HFO)** shows excellent adhesion to a wide range of substrates typically found in building construction, as well as air seals and insulates in one step. **AMBI-TITE 204 (HFO)** meets the intent of the building codes for residential and commercial construction.

GENERAL APPLICATION GUIDELINES

AMBIT's SPF Systems should be processed using commercially available spray equipment capable of maintaining the pressures and temperatures as recommended by AMBIT Polyurethane (see *Recommended Processing Parameters*) by a qualified trained applicator. It is the responsibility of the trained applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to the SPF application.

▪ PROPORTIONER

Proportioning equipment should be able to maintain all temperature settings and ratios, etc. as shown in the *Processing Parameters Chart* above. Use only fixed ration (1:1), volumetric positive displacement pumps connected to a common drive.

▪ SPRAY GUN

Air or mechanical purge guns can be used with this chemical system. Spray gun should be able to thoroughly mix the two components, ISO (A-Component) and RESIN (B-Component).

▪ TRANSFER PUMPS

The use of 2:1 transfer pumps are recommended for supplying the liquid components to the proportioner. Assure equal pressure is delivered from both sides to the proportioner.

▪ PRIMARY HEATERS & HEATED HOSE

Primary heaters should be monitored and adjusted separately from the heated hose and should be capable of maintaining the temperature from the primary heaters to the spray gun.

RECOMMENDED PROCESSING PARAMETERS

	SUMMERTIME	WINTERTIME
Primary A-Side Heater	108° - 115°F	108° - 130°F
Primary B-Side Heater	108° - 115°F	108° - 130°F
Hose Temperature	108° - 115°F	108° - 130°F
Processing Pressure	900 – 1200 psi	900 – 1200 psi
Minimum Application Temperature	>50°F	>20°F
Ambient Humidity	<85%	<85%
Maximum Moisture of Wood Substrate	19%	19%

These are recommended "initial" settings. Settings may vary based on equipment, temperature, humidity, substrate, and/or elevation at the time of application. It is important to observe the foam and to make additional adjustments as needed to maintain proper cell structure, foam adhesion and overall foam quality. A spray test should be conducted to verify the processing pressure, primary heater and hose temperature settings prior to spraying.

AMBIENT AIR/SUBSTRATE TEMPERATURE

Ambient air, substrate temperature and moisture all play a role in foam quality. Variations in the substrate and ambient air temperatures and moisture will directly affect the expansion, adhesion and product yield which will impact the physical properties of the foam insulation. It is the applicators responsibility to recognize and anticipate climatic conditions prior to the installation and to ensure the system is being applied within the processing parameters.

Substrate temperatures should be between 50°F and 110°F, based on grade, at the time of installation. The warmer the substrate temperature, the better the adhesion.

NOTE: Installation occurring in cold weather temperatures may require adjustment of material temperatures, application temperatures, substrate preparation, spray technique and/or environmental conditions. Contact the AMBIT Polyurethane Technical Service Department for assistance.

MATERIAL HANDLING

• CHEMICAL STORAGE

Chemicals must be kept at the recommended temperatures below. Cold chemicals can cause poor mixing, pump cavitation, as well as other chemical processing problems due to higher viscosity at lower temperatures. Hot chemicals can cause drums to bulge due to the reaction of the blowing agent. (see Bulging Drums Section below.)

	AMBIT PMDI-ISO ISOCYANATE (A-COMPONENT)	AMBI-TITE 204 (HFO) RESIN (B-COMPONENT)
Storage Temperature	65° - 110°F	55° - 70°F
Shelf Life	One year (12 months)	Six months (6 months)

Do not store in direct sunlight. Keep containers tightly sealed when not in use and must be kept upright to prevent leakage. Store away from incompatible materials, food, and drink. Store in properly labelled containers. Observe label precautions.

• BULGING DRUMS

Proportioning equipment should be able to maintain all if the drums are bulged due to excessive heat, do not open the drums. Cool the drums for approximately 24 – 48 hours to allow the expanded blowing agent, HFO, to return to a liquid state. Other means of cooling the drums on site may be necessary, contact the AMBIT Technical Service Department for more information.

• PROPER FLUSHING & CHANGE OVER PROCEDURE

ISO (A-Component) LINES SHOULD NEVER BE FLUSHED WITH WATER. Only flush ISO (A-Component) lines with more ISO (A-Component). It is imperative to adequately flush the RESIN (B-Component) lines with at least 5 gallons of water when switching between products. When changing out the RESIN (B-Component) from open cell to closed and vice versa or when changing between

different brands of SPF, it is important that the supply hoses and pumps be drained completely, and the drum pump be wiped down to remove any leftover residue from the previous RESIN (B-Component). Mixing of different product types, especially closed cell into open cell, will contaminate the new RESIN (B-component) and can result in off-spec foam that does not comply with the ICC Evaluation Service Report and does not qualify for the AMBIT Limited Lifetime Warranty. It is the SPF applicators responsibility to follow this guideline to ensure that the new RESIN (B-Component) does not become contaminated.

• WASTE DISPOSAL

Dispose of raw chemical in accordance with local, regional, national, and international regulations as specified. Do not discharge into sewer systems or waterways.

• CONTAINER DISPOSAL

Steel drums must be emptied (as defined by RCRA, Section 261.7 and/or in accordance with local, regional, national, and international regulations which may be more stringent) and sent to a licensed drum re-conditioner for reuse, a scrap metal dealer, or an approved landfill. Drums being sent to a scrap dealer or landfill must be punctured or crushed to prevent reuse.

• SPILL CONTAINMENT & CLEAN UP

Isolate the area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause slipping hazard. Ensure adequate ventilation. Contain the spillage. Soak up with non-combustible absorbent material, (ex. sand, earth, diatomaceous earth, vermiculite) and transfer to a suitable and properly labeled container for disposal according to local, regional, national, and international regulations Clean contaminated surface thoroughly.

• ENVIRONMENTAL PRECAUTIONS

Do not allow uncontrolled discharge of product into the environment. Do not allow material to contaminate ground water system. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained. If the product contaminates rivers and lakes or drains inform respective authorities.

SAFETY AND HANDLING

• RESPIRATORY PROTECTION

Spraying of polyurethane foam results in the atomizing of the components to a fine mist. Inhalation and exposure to the atomized particles must be avoided. For this reason, AMBIT requires the MANDATORY use of a properly fitted, NIOSH-certified, full-face piece pressure demand self-contained breathing apparatus (SCBA) or a full-face piece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply during the installation of any of our spray polyurethane foam (SPF) systems. Respirators should be used in accordance with a respiratory protection program to ensure proper fitting, training, and other important aspects of use. See the [“Guidance for Developing a Written Respiratory Protection Program”](#), published by the American Chemistry Council Center for Polyurethane Industry for more information.

Persons with known respiratory allergies should avoid exposure to the ISO (A-Component). The ISO (A-Component) contains reactive isocyanate while the RESIN (B-Component) contains amine and/or catalysts with blowing agents. Both materials must be handled and used with adequate ventilation (*See Ventilation Requirements*). The vapors must not exceed the TLV (0.02 parts per million) for isocyanates.

NOTICE: EXPOSURE CAN OCCUR EVEN WHEN NO NOTICEABLE ODOR IS PRESENT.

• PERSONAL PROTECTIVE EQUIPMENT (PPE)

SPF applicators should avoid breathing vapors or having chemical contact with skin, eyes, and clothing. The use of proper Personal Protective Equipment is required when handling chemicals and include but are not limited to:

- NIOSH approved Full-face mask or hood with fresh air source.
- Overall (preferably heavy cotton) or Tyvek-Pro Tech ‘C’, Tyvek Pro ‘F’ disposable coverall.
- Non-permeable protective gloves

For more information on safety and handling, please consult the **AMBI-TITE 204 (HFO)** Safety Data Sheet (SDS).

JOBSITE SAFETY AND PREPARATION

• VENTILATION REQUIREMENTS

AMBIT Polyurethane requires that a mechanical ventilation system be utilized in a workplace where spray polyurethane foam (SPF) is applied. At minimum, the ventilation requirement is needed during spray application and for a period of 24 hours after the foam installation has been completed. Any mechanical ventilation system used in the workspace needs to be able to exhaust air directly to the exterior of the building at a minimum rate of 0.3 Air Changes per Hour (ACH). The volume of the workspace would need to be determined for system design. If, for example, the volume of the workspace is 5,000 ft³ then the minimum capacity of the ventilation system equals 5,000 ft³ x 0.3 ACH = 1,500 ft³/h = 25 ft³/min (cfm). 0.3 ACH is the minimum ventilation rate and can be achieved by most commercial ventilation fans. While 0.3 ACH is the minimum recommendation it is recommended that this level be exceeded. The more a workspace can be ventilated, the better. More information can be found in the [“Guidance on Ventilation During Installation of Interior Applications of High-Pressure Spray Polyurethane Foam”](#) published by the American Chemistry Council, Spray Foam Coalition.

• SUBSTRATE PREPARATION

AMBI-TITE 204 (HFO) is suitable for application to most construction materials such as wood, metal, masonry, and concrete. For proper adhesion, substrate must be clean and free of any surface residue such as oil, grease, etc. The physical characteristics of the polyurethane will be affected by the presence of moisture. For this reason, it is imperative that the moisture content of the substrate does not exceed 19%. All substrates must be dry and completely free of rain, condensation, dew, or frost. Moisture will react with the ISO (A-Component) of the chemical system, resulting in off-ratio polyurethane foam as well as, poor adhesion and physical properties. Polyurethane foam applied during these conditions should be removed completely and the substrate should be allowed to dry thoroughly prior to the new installation.

Galvanized Metal Substrate Preparation: Spraying on galvanized metal requires wiping down the surface with a

10% solution acetic acid (vinegar). After 10-15 minutes, wash the surface with water or wipe it down with wet rags. Allow substrate to dry thoroughly prior to installation.

- **HOT WORK**

Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs

warning that all “hot work” such as welding, soldering, and cutting with torches should take place no less than 35 ft. from any exposed foam. If “hot work” must be performed all spray polyurethane foam (SPF) should be covered with an appropriate fire or welder’s blanket, and a fire watch should be provided.

- **OVER SPRAY PREVENTION**

Avoid spraying during sustained wind speeds or gusts exceeding 15 miles per hour. Over spray can travel long distances and may adhere to objects left unprotected such as windows, doors, equipment, or building exterior and automobiles. It is the responsibility of the applicator to identify and protect surfaces that could be affected by over spray.

LIMITATIONS OF USE

- **PROXIMITY TO HEAT SOURCES**

The polyurethane foam is combustible. Do not expose to open flame, welding torches, sparks, etc. Keep the foam at least 3 inches (76 mm) away from heat producing sources, such as recessed light fixtures, insulation contact rated (IC) light fixtures, combustion appliance flues, fireplace flues, etc. No smoking during product application.

- **MAXIMUM PER PASS THICKNESS**

The combination of the ISO (A-Component) and RESIN (B-Component) creates a chemical reaction that produces heat. Applicators should limit the application of this product to no more than a thickness of 4” per pass (after expansion) to avoid a fire hazard (including spontaneous combustion) resulting from excessive heat generation. If subsequent passes are needed, applicators should wait until the core temperature of the foam has dropped below 100°F to allow any reaction heat to dissipate from the prior applications before attempting to reapply the product.

TECHNICAL ASSISTANCE

For additional Technical Assistance, please contact AMBIT Polyurethane’s Technical Service Department by calling +1 (817) 677-1200.



MANUFACTURED BY

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DISCLAIMER

To the best of our knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. User must contact AMBIT Polyurethane to verify correctness before specifying or ordering. We guarantee our products to conform to the quality control standards established by AMBIT Polyurethane LLC. We assume no responsibility for coverage, performance or injuries resulting from use. Liability, if any, is limited to replacement of the product. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY AMBIT POLYURETHANE EXPRESSED OR IMPLIED; STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALL PATENT RIGHTS ARE RESERVED.