

# TECH SOLUTIONS 219.0 FROTH-PAK™ FOAM INSULATION KITS (CLASS A) IN RIM JOIST APPLICATIONS



## SUMMARY

FROTH-PAK™ spray polyurethane foam is a two-component, quick-cure foam that fills cavities, cracks and expansion joints for insulation and air sealing. It is available in disposable kits for smaller jobs and refillable cylinders for applications that require a greater amount.

FROTH-PAK™ Foam Insulation kits are well-known for insulating stud wall cavities up to 2" thick, cold floors above unheated areas, crawl space and attic walls, and ceilings when covered with a code-approved barrier. The kit can be restarted and reused for up to 30 days after initial startup. This Tech Solutions will cover the use of FROTH-PAK™ Foam Insulation kits in rim joist applications.

## BUILDING CODE INFORMATION

Rim joist application with spray-applied foam plastic is documented in the 2009 International Building Code (IBC) Section 2603.4.1.13 Type V construction and 2009 International Residential Code (IRC) Section R316.5.11. Foam plastic may be spray-applied to a sill plate and header of Type V construction without a thermal barrier (exposed) when the following conditions are met:

- The maximum thickness of the foam plastic shall be 3-1/4".
- The density of the foam plastic shall be in the range of 0.5-2.0 pcf per the IRC, and 1.5-2.0 pcf per the IBC.

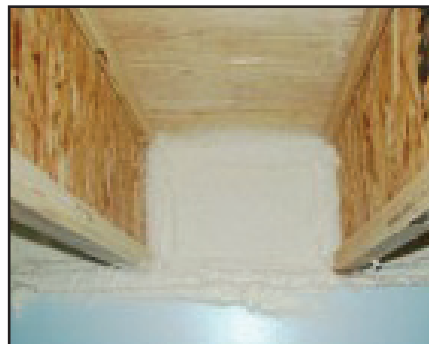


- The foam plastic shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

**Note:** FROTH-PAK™ Foam Insulation is UL classified as foam plastic (UL File R7813).

- Tested at 2" thickness full coverage
- Flame spread = 25, and smoke-developed = 350

Always check local building codes before using FROTH-PAK™ Foam Insulation products.



Typical applications of FROTH-PAK™ Foam Insulation in rim joist areas.

## FROTH-PAK™ FOAM INSULATION KITS (CLASS A) IN RIM JOIST APPLICATIONS

### STORAGE AND HANDLING

- Store all isocyanate and polyol cylinders in a dry area at room temperature, no higher than 120°F and no lower than 45°F.
- In case of spills, refer to Material Safety Data Sheets for proper cleanup.
- FROTH-PAK™ Foam Insulation kits can be restarted up to 30 days after initial use (see “Starting Partially Used Kits”).
- For disposal of empty containers, check local and state guidelines.

### SAFETY AND CONDITIONS OF USE

- Read the instructions and Material Safety Data Sheets carefully before use.
- FROTH-PAK™ spray polyurethane foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Do not breathe vapor or mist. Use only in well-ventilated areas or with proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter may be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure, air-supplying respirator (air line or self-contained breathing apparatus).
- Isocyanate is irritating to the eyes, skin and respiratory system, and may cause sensitization by inhalation or skin contact.

- FROTH-PAK™ foam will adhere to most surfaces and skin. Do not get foam on skin. Wear protective clothing (including long sleeves), gloves and goggles or safety glasses. Cured foam must be mechanically removed or allowed to wear off in time.
- The contents are under pressure.
- FROTH-PAK™ products should not be used around heaters, furnaces, fireplaces, recessed lighting fixtures or other applications where the foam may come in contact with heat-conducting surfaces. FROTH-PAK™ foam is combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F.

### JOB PREP

1. Ensure that all surfaces (joists, rim ends, etc.) are clean and free of dust, grease or other contaminants.
2. Best results are obtained when ambient, chemical and substrate temperatures are around 75°F. If the temperature gets much cooler than this, the change in viscosity makes it harder for the material to circulate, potentially resulting in off-ratio foam.
3. Cover any articles or equipment in the area to protect from overspray and mist. Use a drop cloth if spraying on a finished floor. FROTH-PAK™ Foam Insulation sticks to most surfaces and cannot be easily removed. Be careful that the uncured foam from the mist and spray equipment, and on gloves and shoes, is not inadvertently transferred to unprotected surfaces.

4. Refer to “Safety and Conditions of Use” before application.

### EQUIPMENT SETUP

#### Dispensing Equipment

1. Lift the INSTA-FLO™ dispensing gun/hose assembly out of the box and fully uncoil hoses.
2. Free the perforated section at the top of the box (near the locking tab that retained the lid), and bend it down to allow the two hoses to enter through the two cutouts.

#### Containers

The temperature indicator on the side of the container shows the temperature of the container's contents, not the ambient air temperature. For best results, the container contents should be at 75°F. On most FROTH-PAK™ Foam Insulation kits, a handle connects the two containers for portability. The handle also allows the containers to be easily removed from the box, if necessary.

#### Gun/Hose Assembly

##### Hoses

The hoses are designed for flexibility to enable dispensing gun mobility. The hoses are clear so that the installer can see the two components working together. Kits include a 9' hose with gun assembly, but longer hoses can be purchased. The longer lengths allow users to stand on a ladder and dispense foam while the kit sits firmly on the ground.

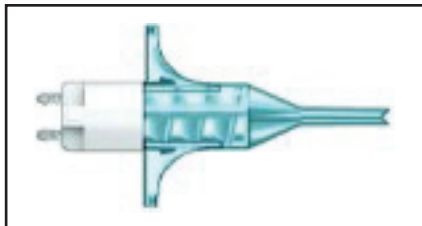
For the FROTH-PAK™ 620 Foam Insulation kit, attach the hoses to the containers using the open-end wrench provided. Begin by threading the end of the hose onto

## FROTH-PAK™ FOAM INSULATION KITS (CLASS A) IN RIM JOIST APPLICATIONS

the container outlet by hand, being careful not to cross-thread the outlet. If there is immediate resistance, unscrew the end, properly align the hose and try again. If the hose end threads easily, tighten the hose end using the wrench. The wrench is designed to warp or bend if excessive pressure is applied. Do not overtighten.

The two material components react immediately upon contact. The system is designed to keep these components apart (anti-crossover) until just prior to exiting the gun. The dispensing nozzle mixes the two chemicals together so that they are thoroughly combined. Crossover is when one chemical from one side gets into the other side. This can happen at the nozzle or, in extreme cases, within the hoses. If this happens, the hoses should be replaced.

With the gun/hose assembly firmly attached to the containers, turn on each container valve slowly, checking for any leaks where the hoses have been attached to the container and where the gun has been attached to the hose.



The Fan/Spray nozzle has a notch for a wide coverage area. Other nozzles available include: Caulking for low output, NS Cone/Spray for medium output, and Pour for high output.

If there are no leaks, then fully open the valve, noting the initial movement of the chemical through the clear hoses as a confirmation of flow. Purge the system into a waste container by activating the trigger of the dispensing gun. When the streams are equal, release the trigger, clean the chemical from the gun with a clean cloth and reapply petroleum jelly.

### *Dow's Distinct Anti-Crossover Nozzles*

1. Apply petroleum jelly to the inside face of the dispensing gun. This makes cleanup much easier and extends the life of the gun.
2. Select a fan/spray nozzle or caulking nozzle. Insert nozzle into the front of the dispensing gun. Make sure the nozzle clips securely into the gun. Failure to properly seat the nozzle will allow foam to escape from the sides of the nozzle.
3. Purge foam into a waste container to assure proper flow and ratio. Start spraying the rim joist or other location immediately.
4. If the kit is not empty when the job is complete, the kit can be reused up to 30 days later if properly closed. If the kit is to be stored and used later, follow these directions:
  - a. Leave the used nozzle on the gun. Foam will cure in the nozzle and block air from entering the gun.
  - b. Tightly close valves on the containers.
  - c. Store the kit as previously described.

### Starting Partially Used Kits

If the dispenser has not been used for one week or longer, activate the system for a few seconds by turning on the container valves. Remove the old nozzle that should have been left connected to the gun. Squeeze the trigger fully without the nozzle to dispense twin streams into a waste container. This will clear and pressurize the hoses, and should be done every week when the system is idle.

Install a new nozzle. Proceed according to the "Safety and Conditions of Use" and "Equipment Setup" directions.

### APPLICATION

Choose FROTH-PAK™ Foam Insulation (Class A) system.

1. Attach a fan/spray or caulking nozzle to the gun per the "Nozzles" directions.
2. Hold gun nozzle 1' to 2' from the surface.
3. Cover rim end completely, including all joints, by applying an initial bead of foam where building materials intersect or by "picture framing."



Applying an initial bead of foam where the rim joist meets the subfloor is called "picture framing."

**FROTH-PAK™ FOAM INSULATION KITS (CLASS A)  
IN RIM JOIST APPLICATIONS**



After picture framing, spray rim joist area to a maximum of 2" thick.

4. After picture framing, spray rim joist area to a maximum of 2" thick. The wet spray should immediately start expanding and reach its final cured thickness within 1 minute. It may take a little practice to get the desired cured thickness. Try a wet spray thickness of about 1/2" to get a cured thickness of about 2", and adjust as necessary.
5. If spraying stops for more than 30 seconds, replace the nozzle.

**CYLINDER DISPOSAL**

1. Depressurize using the gun with a nozzle attached until flow is slow.
2. Remove the nozzle and continue to depressurize by dispensing the chemical into a waste container until the flow is down

- to a minimum or only large bubbles remain in the hose.
3. Completely close the valves on each cylinder. Open the gun again to depressurize the hoses. Once this is complete, the hoses can be removed from the cylinders. Care should be taken because some pressure may remain in each hose.
4. Slowly open the valves on the cylinders, making sure any contents spray into a waste container. If one of the hoses

was blocked, it is possible large amounts of chemical could come out. Also, if the valve on the cylinder is frozen over, it is difficult to know if the pressure is released. Depressurize the cylinder right after bleeding pressure from the hoses. Do not break the relief device or puncture the cylinder.

5. Dispose of empty cylinders according to local and state regulations.

**TABLE 1: TROUBLESHOOTING DURING FROTH-PAK™ FOAM INSULATION USE**

Observation	Potential Solution
Changes in spray pattern	<ul style="list-style-type: none"> <li>• Inspect spray nozzle. Replace if blocked.</li> <li>• Foam chemicals may be too cold (should be around 75°F). Warm to ambient air temperature. Do not apply heat directly to chemical contents.</li> </ul>
Friable or brittle foam	<ul style="list-style-type: none"> <li>• Too much isocyanate (off ratio).</li> <li>• Blockage on polyol side (hose, gun or nozzle). See below.</li> </ul>
Soft or mushy foam	<ul style="list-style-type: none"> <li>• Too much polyol (off ratio).</li> <li>• Blockage on isocyanate side (hose, gun or nozzle). See below.</li> </ul>
Blocked hose	<p>If the polyol or isocyanate hose gets blocked:</p> <ol style="list-style-type: none"> <li>1. Shut off the cylinder valve on the side that is flowing properly and remove the nozzle.</li> <li>2. Activate trigger on the blocked side at full force for about 15 seconds.</li> <li>3. Turn off all cylinder valves.</li> <li>4. Relieve the hose pressures on A and B sides.</li> <li>5. Clean gun face and orifices, and reapply petroleum jelly.</li> <li>6. Insert a new nozzle, open valves and dispense a test shot to check foam quality. If blockage persists, turn off both cylinder valves, remove nozzle and dispense foam to relieve pressure. Slowly loosen connections at the cylinder valves, clean chemicals from threads and replace with new gun/hose assemblies.</li> </ol>
Isocyanate contamination	<p>If any moisture or water vapor enters the isocyanate container, it will contaminate the material and make it unusable. The reacted material will clog the lines and the gun. The contamination cannot be removed, so the kit must be replaced.</p>

**NOTICE:** No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries or regions. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. **NO EXPRESS WARRANTIES ARE GIVEN EXCEPT FOR ANY APPLICABLE WRITTEN WARRANTIES SPECIFICALLY PROVIDED BY DOW. ALL IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

**Dow Polyurethane Foam Insulation and Sealants**

**CAUTION:** These products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.

FROTH-PAK™ spray polyurethane foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and Material Safety Data Sheets carefully before use. Wear protective clothing (including long sleeves), gloves, goggles or safety glasses, and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter may be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure.

For Technical Information: 1-866-583-BLUE (2583) . For Sales Information: 1-800-232-2436  
THE DOW CHEMICAL COMPANY . Dow Building Solutions . 200 Larkin . Midland, MI 48674  
www.sprayfoamatdow.com

