

**Topic: Packing and Forming Materials for Firestopping Applications**

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**For more information, contact the Technical Service Department at 866-209-2404.**

**Packing & Forming Materials**

Also called damming, safing or fire-safing. UL listed as "Packing Material" or "Forming Material." These are general categories for these types of materials. Firestopping system details will indicate the type of forming material (if any), the depth of the material, and how it should be packed in the system. Care must be taken to use the forming material specified in each system.

**Fiber Materials: Mineral Wool, Ceramic Fiber and Fiberglass**

Typically, fiber materials (mineral wool, ceramic fiber or fiberglass) are required in firestopping systems. Mineral wool and ceramic fiber have high melting temperatures (1200-2000°F to 2300-3200°F) and if tightly packed can add strength to firestopping systems for larger annular spaces. Fiberglass has a lower melting temperature (600-1300°F) and tends to melt away early in the test, adding little, if any, strength to the system. The system typically specifies the required minimum density and thickness of the fiber material to be used. Compression varies from required specified percentages to terms such as: "tightly packed" and "firmly packed."

**Backer Rod, Foam and Styrene Boards**

Other types of forming material are backer rods, styrene boards and foam. These products are used to ensure proper depth and provide support during curing for the firestop sealants or mortar. These products are supplied in three ways:

1. **Aerosol foam:** polyurethane foam that expands when dispensed. Typically used to insulate and seal holes, gaps and cracks in un-rated construction. **Note:** Problems can arise if the foam expands in the annulus and is then cosmetically covered with firestop sealant. The foam is inexpensive and flows easily into inaccessible locations. However, without the proper depth of firestop sealant, this is not a fire rated system.
2. **Backer rod:** cylindrical polyurethane or polyethylene foam material available in rolls or stick lengths. Polyurethane and polyethylene backer rods perform similarly in fire tests.
3. **Styrene board:** flat sheets of various thicknesses. These plastic products are flammable and may require removal. In the fire test, the foam products melt quickly and give no strength to the firestop system.

For firestop penetration systems, the general hierarchy of forming materials from best performing to worst performing is:

1. **Ceramic Fiber** (best)
2. **Mineral Wool**
3. **Fiberglass**
4. **Backer Rod** (open or closed cell), **Styrene Foam board**, and **spray foam** (aerosol can)
5. **Nothing** at all (worst)

**General Guidelines for Engineering Judgments regarding forming materials**

Each firestop system specifies the type or types of forming materials to be used; however, when writing Engineering Judgments, Tremco uses the following general guidelines, along with other considerations, for substitutions that will not adversely affect the hourly F or T ratings of firestop systems:

1. A higher ranking grade of forming material may be used in place of a lower ranking material.
2. A higher density of the same material (Ceramic Fiber or Mineral Wool) may be used in place of a lower density.
3. Polyurethane and polyethylene backer rods may be substituted for each other.

Note: When substituting forming material, contact Tremco Technical Service at 866-209-2404 for assistance.