



# Fire Barrier 2001 Silicone RTV Foam

## Product Data



FILL, VOID OR CAVITY MATERIALS  
CLASSIFIED BY  
UNDERWRITERS LABORATORIES, INC.®  
FOR USE IN THROUGH-PENETRATION FIRESTOP  
SYSTEMS.  
SEE CURRENT UL FIRE RESISTANCE DIRECTORY  
7M32.  
Made in U.S.A.

2001 Silicone RTV Foam is designed to seal large and/or complex penetrations such as cable bundles and trays, conduit bundles and multiple pipe runs. Penetrating items can be easily added, changed or removed. There is no ampacity derating of cables when product is used properly.

The A Component is black and the B component is off-white for easy identification and inspection of the mix. When the A and B components are thoroughly mixed in a 1:1 ratio by either weight or volume, the product will expand and cure to a foamed elastomer at room temperature. Only a mild exotherm is exhibited during the curing reaction. In one to five minutes, the two mixed components will expand, foam, cure and flow around all penetrating items in an opening, forming a compression seal.

### 3M Fire Barrier Silicone RTV Foam Features

- Foams in place to seal complex penetrations
- Cures in one to five minutes to form a compression seal
- Elastomeric compression seal
- Re-enterable/repairable
- Excellent sound barrier properties
- No ampacity derating of cables when used properly
- Provides up to a 3-hour fire rating
- Easily mixed by hand or automated mixing and dispensing equipment.

## 1. Product Description

3M™ Fire Barrier 2001 Silicone RTV Foam is a medium-density, two-part silicone elastomer supplied as A and B liquid components designed for use as a fire, smoke, noxious gas and water sealant.

## 2. Applications

Use to seal construction openings and penetrations through floor slabs, walls and other fire-rated building partitions and assemblies against the passage of flame, noxious gas, smoke and water. Restores fire rated construction to original integrity.

## 3. Physical Properties

Product	Unit	Volume	Units/ctn.	Wt. Ctn. Lbs. (Kg)
2001 Silicone RTV Foam	7 fl. oz. Kit	*30 cu. in.	12	34 lbs. (15.4 kg.)
	2 lb. Kit (Part A&B)	*138 cu. in.	12	32 lbs. (14.5 kg.)
	16 lb. Kit (Part A&B)	*1106 cu. in.	1	18 lbs. (8.2 kg.)
	80 lb. (Part A&B)	*5528 cu. in.	1	42.5 lbs. (19.3 kg.) Part A 42.5 lbs. (19.3 kg.) Part B

\*Foam densities will vary with field conditions, i.e., hole size, type, number of penetrating items and temperature of products. Unrestrained foam rise can result in values as low as 14 lb./ft.<sup>3</sup> while restricted foam rise will result in much higher values. For illustrative purposes, a value of 25 lb./ft.<sup>3</sup> was used.

Manufactured by Dow Corning Corporation for 3M.

## 4. Specifications

### Product

The firestopping foam will be a two-part, silicone elastomer. The foam shall be listed by independent test agencies such as UL or FM and be tested to, and pass the criteria of, ASTM E 814 Fire Test, tested under positive pressure. It shall comply with the requirements of the NEC (NFPA-70), BOCAI, ICBO, SBCCI and NFPA Code #101.

### Typically Specified Divisions

Division 7 07270	Thermal and Moisture Protection Firestopping
Division 13 13900	Special Construction Fire Suppression and Supervisory Systems
Division 15 15250 15300	Mechanical Mechanical Insulation Fire Protection
Division 16 16050	Electrical Basic Electrical Materials and Methods

## 5. Performance

### A. Typical Physical Properties

These values are not intended for use in preparing specifications

#### As Cured – Physical<sup>1</sup>

CTM 0176	Appearance .....	Dark gray to black elastomeric foam
CTM 092A	Snap Time <sup>2</sup> , minutes .....	1 to 2
CTM 0845A	Density <sup>3</sup> , lbs/ft <sup>3</sup> .....	18 to 25
CTM 0826	Cell Structure <sup>4</sup> , closed cell, percent.....	>50
ASTM D 3574	Tensile Strength, psi.....	15
CTM 0740	K Factor <sup>5</sup> , 17 lbs/cu ft foam, BTU-in/hr-ft <sup>2</sup> -°C .....	0.45
CTM 0585	Linear Coefficient of Thermal Expansion, (-25 to 150°C), cm/cm °C.....	3.2 X 10 <sup>-4</sup>

#### As Cured – Flammability<sup>6</sup>

CTM 0316A	Fixed Ignition Time, seconds.....	20
	Glow-Out Time, seconds.....	10
CTM 0780	Limiting Oxygen Index, LOI rating .....	39

<sup>1</sup> One part A thoroughly mixed with one part B and cured at 25°C (77°F) for 24 hours.

Contact 3M for current sales specifications.

<sup>2</sup> Time to nonpour conditions. Also time to begin foam rise.

<sup>3</sup> Power mixed for 30 seconds and cured in nonconfined condition.

<sup>4</sup> Breathability method.

<sup>5</sup> Cured foam sample thickness - 1.0 inch.

<sup>6</sup> Tests, claims, representatives and descriptions regarding flammability are based on small-scale laboratory tests. Such tests are not reliable for determining, evaluation, predicting or describing the flammability or burning characteristics of the product under actual fire conditions, whether the product is used alone or in combination with other products.

### B. Firestopping Properties

Meets the criteria of ASTM E 814 Fire Test, tested under positive pressure. Consult current UL Fire Resistance Directory for systems listed under 3M Product 2001 Silicone RTV Foam.

### C. Firestopping Code Requirements

ICBO Uniform Building Code (1991 edition)	SBCCI Standard Building Code (1991 edition)	BOCA Basic/National Building Code (1990 edition)	NFPA Life Safety Code #101 (1991 edition)	NEC National Electric Code	CABO Council of American Building Officials Report Number
302(d) Application for Permit	103.2.4 Structural and Fire Resistance Integrity	901.2 Penetrations	6-2.3.6 Penetrations and Misc. Openings and Fire Barriers	300-21. Fire Stopping	NER 243
1704 Vertical Fire Spread at Exterior Walls (Curtain Walls)	705.1.6 Fire Stopping (Curtain Wall)	902.1 Structural Building Assemblies (Curtain Wall)			
1706 Shaft Enclosure	1001.3 Penetrations of Fire Resistant Assemblies	913.4.1 Through-Penetration System (Floor/Ceiling, Roof/Ceiling Assemblies)			
1701 Construction Joints	1001.3.6 Method E: Through-Penetration Protection Systems	915.6 Vertical Shafts			
4304(e) Walls and Partitions					
4304(f) Membranes					
4305 Floor/Ceilings, Floors					

City of New York, NY Report MEA 152-83-M Vol. III.

City of Los Angeles, CA Research Report RR 24463.

## 6. Installation Techniques

### A. Inhibition of Cure

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of 3M Fire Barrier Silicone RTV Foam, including:

- Organotin and other organometallic compounds
- Silicone rubber containing organotin catalyst
- Sulfur, polysulfides, polysulfones and other sulfur-containing materials
- Amines, urethanes and amine-containing materials
- Unsaturated hydrocarbon plasticizers

### B. Preparatory Work

The penetration opening and all related surfaces must be clean of dirt, dust and loose impediments. Surfaces must also be free of water, oil or other free liquids.

### C. Painting or Coating

Most coatings/paints do not adhere to this product.

### D. Damming the Penetration

Damming is required to prevent the liquid foam mixture from running out before it foams. Damming materials may also contribute to the fire resistant properties of particular system configurations. Check system design to make sure that proper damming materials and technique are used.

### E. Mixing the Components

Prior to use, Part A and Part B components must be thoroughly stirred in their original containers to uniformly redisperse any fillers or pigments that may have settled. When mixing Part A and Part B, use clean containers and mixing equipment. If stirred containers stand for more than four hours, re-stir.

At time of installation, material temperature should be between 65°F (18°C) and 80°F (27°C). This can be done by bringing the containers into a room between 65°F (18°C) and 80°F (27°C) and allowing them to sit for 12 hours. Please check material temperature prior to use if there is a possibility it is outside this range.

To properly catalyze 3M Fire Barrier 2001 Silicone RTV Foam, an equal quantity of Part A is added to an equal quantity of Part B by either weight or volume. For batch mixing by hand or power mix, vigorous and thorough mixing should be maintained for 30 to 60 seconds. The mixed product begins to foam shortly after mixing; therefore, it should be dispensed in the penetration as soon as mixing is completed. For large-volume applications, the use of suitable automatic mixing,

metering and dispensing equipment is recommended. A list of equipment manufacturers is available from 3M upon request.

The type and degree of mixing can significantly affect the cell structure and density of the final foam product. Hand mixing will typically result in higher densities than power mixing by automatic mixing, metering and dispensing equipment. Typical expansion is 2:1 to 4:1 depending on the type and degree of mixing.

### F. Working Time

When properly mixed, 3M Fire Barrier 2001 Silicone RTV Foam has a snap time (or working time) of one to two minutes at 77°F (25°C). Snap time is dependent upon the temperature of the A and B components just before and after they are mixed.

### G. Installation

**CAUTION: When using 3M Fire Barrier 2001 Silicone RTV Foam to seal large penetration openings, care should be exercised to avoid gas entrapment. Adequate ventilation should be provided to prevent build-up of hydrogen gas. Forced air ventilation is necessary if the work area has less than two cubic feet of free air space for each pound of liquid mixing being foamed. Adequate ventilation must be provided to prevent build-up of hydrogen gas at explosive levels.**

**Waste materials must be considered with regard to these precautionary measures during disposal and storage. Waste materials should not be sealed in such things as plastic bags and similar containers that could trap hydrogen gas.**

3M Fire Barrier 2001 Silicone RTV Foam should not be dispensed in liquid layers thicker than 1 inch (2.54 cm) at any given spot. Allow at least 15 minutes between application of each foam layer. If the opening is not filled to the desirable level when the cured foam has completed its expansion, repeat the injection and cure procedure until the desired fill rate is attained.

To permit a clear view when filling a wall cavity, damming materials are built up gradually. The top of the opening is dammed for the final shot of foam. After the foam is installed, damming materials are left in place for 24 hours to allow the penetration seal to cure fully.

After 24 hours, the penetration seal must be completely inspected by removing the damming materials. Curing foam should completely fill the penetration, providing a tight, compressive fit. Any remaining gaps are filled with freshly mixed foam or 3M Fire Barrier 2000 Silicone Sealant. The seal should then be reinspected after an additional 24 hours. Damming materials that are part of a specific system design must be replaced to their proper positions.

### I. Quality Control

Snap Time, minutes <sup>1</sup>	1-2
Free Foam Density <sup>1</sup> , lb/ft (gm/cm)	14-10 (0.22-0.32)

Color Chart Comparison (3M Form #98-0400-2359-4) Pass

Cell structure Chart Comparison (3M Form # 98-0400-2359-4) Pass

<sup>1</sup>Standard procedures for measuring snap time and free foam density are available from 3M upon request. Totally unconfined, density values as low as 14 lb/ft<sup>3</sup> (.22 gm/cm) may be obtained.

### J. Clean Up

Excess foam around the penetration seal can be removed with a sharp knife or blade. Spills of Part A and Part B liquid components can be removed with high flash-point mineral spirit solvent. Follow manufacturers precautions when handling solvents.

### Installation Notes:

Shown are examples of UL classified applications of 2001 Silicone RTV Foam. Additional drawings and details are available through your Authorized 3M Fire Protection Products Distributors.

1. Metal pipe/conduit/insulated cables
  - All cases require a minimum 7-inch depth of 2001 Silicone RTV Foam.
  - All cases 1 inch thick Fiberfrax<sup>®</sup> Duraboard<sup>™</sup> LD at the bottom surface of floor openings.
  - Maximum 2.7 percent cable fill allowed based on cross-sectional area.
2. Cable tray through concrete wall
  - All cases require a minimum 7-inch depth of 2001 Silicone RTV Foam.
  - All cases 1 inch thick Fiberfrax<sup>®</sup> Duraboard<sup>™</sup> LD required at both wall surfaces.
  - Maximum two steel open ladder-back cable trays 18" wide x 3" deep.
  - Maximum cable fill in trays is 39 percent based on cross-sectional area.



## 7. Maintenance

### A. Storage

Part A and Part B components of 3M Fire Barrier 2001 Silicone RTV Foam are delivered in separate containers. **They should be stored out of the weather in their unopened containers at or below 90°F (32°C).**

When stored in the original unopened containers at this temperature, shelf life is 12 months from date of shipment from 3M. Partially used containers should be sealed tightly and stored in a similar manner.

### B. Safe Handling Information

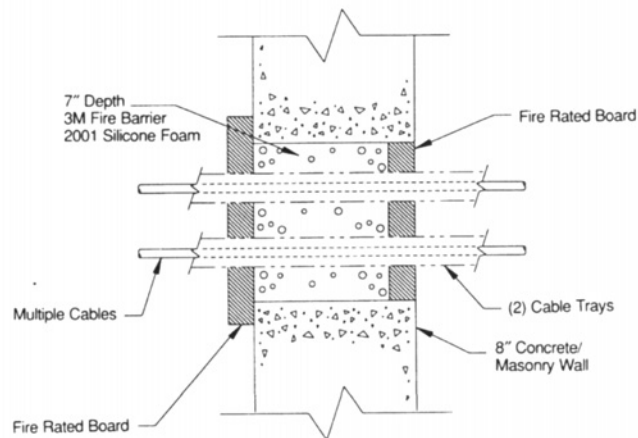
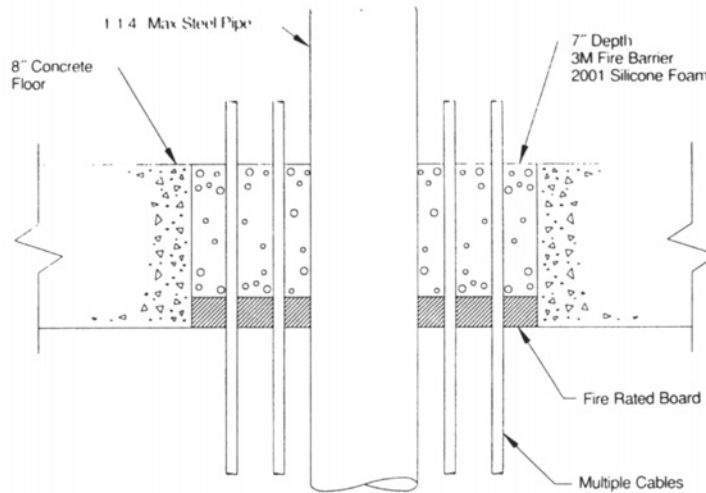
**Consult Material Safety Data Sheets prior to handling and disposing of 2001 Silicone RTV Foam.**

**CAUTION:** Immediately upon mixing A and B components of 2001 Silicone RTV Foam, a chemical reaction takes place that results in the generation of hydrogen gas. Appropriate caution should be exercised. **Keep away from sparks and open flame.**

The liquid Part B component of 2001 Silicone RTV Foam in contact with bases or catalytic oxidizing materials, could generate hydrogen gas. **A bulged Part B container may indicate hydrogen gas pressurization,** and appropriate caution should be exercised. If this occurs, see Material Safety Data Sheet or call 3M at 612/733-1110.

### 8. Availability

3M Fire Barrier 2001 Silicone RTV Foam is available from 3M Authorized Fire Protection Products Distributors. **2001 Silicone RTV Foam Part B cannot be shipped by air.** It is available in 7 fl. oz. kits, 2 gallon (Part A & B) kits, 16 gallon (Part A & B) kits, and 80 lb. (Part A & B) kits.



Complete document includes system/application pages.

**Warranty and Limited Remedy.** This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

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# 3M

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