

# FS-ONE High Performance Intumescent Firestop Sealant

## Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

## Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

## Areas of application

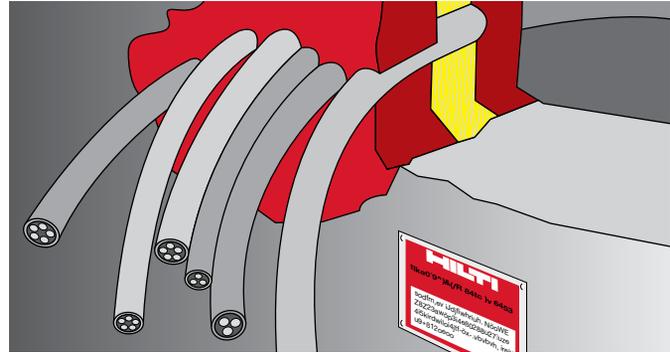
- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

## For use with

- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

## Examples

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction



Technical Data*	FS-ONE
<b>Chemical basis</b>	Water-based intumescent acrylic dispersion
<b>Color</b>	Red
<b>Application temperature</b>	40°F to 104°F (5°C to 40°C)
<b>Skin forming time</b>	Approx. 20-30 min.
<b>Curing time</b>	Approx. 2 mm / 3 days
<b>Average volume shrinkage (ASTM C1241)</b>	24.1%
<b>Movement capability</b>	Approx. 5%
<b>Expansion rate (unrestricted)</b>	Up to 3-5 times original volume
<b>Temperature resistance (cured)</b>	-40°F to 212°F (-40°C to 100°C)
<b>Surface burning characteristics (ASTM E 84-96)</b>	Flame Spread: 0 Smoke Development: 5
<b>Sound transmission classification (ASTM E 90-99)</b>	56 (Relates to specific construction)

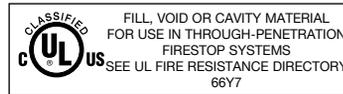
## Approvals

- California State Fire Marshal - No. 4485-1200:108
- City of New York - MEA 326-96-M Vol. IV

## Tested in accordance with

- UL 1479 • ASTM E 814 • ASTM E 84

\*At 73°F (23°C) and 50% relative humidity



## Installation instructions for FS-ONE

### Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

### Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

### Application of firestop sealant

2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).

4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance. Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.
5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

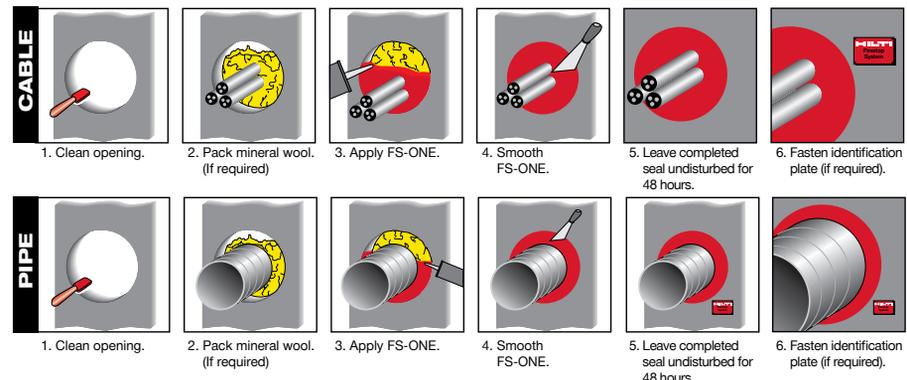
- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green or partially vulcanized rubber
- In any penetration other than those specifically described in this manual or the test reports

### Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the package

### Not for use

- High movement expansion joints
- Underwater



**Hilti. Outperform. Outlast.**



MSDS No.: 259  
Revision No.: 010  
Revision Date: 08/17/04  
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## MATERIAL SAFETY DATA SHEET

**Product name:** FS-ONE High Performance Intumescent Firestop Sealant  
**Description:** One-part acrylic-based sealant  
**Supplier:** Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121  
**Emergency # (Chem-Trec.):** 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

## INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m <sup>3</sup> (T)	10 mg/m <sup>3</sup> (T)	NE
Zinc borate	138265-88-0	NE	NE	NE
Ammonium polyphosphate	068333-79-9	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m <sup>3</sup>	NE
Expandable graphite	012777-87-6	5 mg/m <sup>3</sup> (T)	2 mg/m <sup>3</sup> (T)	NE
Ethylene glycol	000107-21-1	NE	C:100 mg/m <sup>3</sup> (A)	NE
Polybutene	009003-29-6	NE	NE	NE
Iron oxide	001309-37-1	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	NE
Glass filament	065997-17-3	NE	5 mg/m <sup>3</sup> (T)	NE
Silicon dioxide	014808-60-7	0.05 mg/m <sup>3</sup> (T)	0.1 mg/m <sup>3</sup> (T)	NE
Water	007732-18-5	NE	NE	NE

**Abbreviations:** PEL = OSHA Permissible Exposure Limit. TLV = ACGIH Threshold Limit Value. C = Ceiling. STEL = Short Term Exposure Limit. NE = None Established. NA = Not Applicable. (T) indicates "as total dust". (R) indicates "as respirable fraction". (A) indicates "as an aerosol". mppcf = million particles per cubic foot.

## PHYSICAL DATA

<b>Appearance:</b>	Red paste.	<b>Odor:</b>	Odorless.
<b>Vapor Density: (air = 1)</b>	Not determined.	<b>Vapor Pressure:</b>	23mbar @ 20C / 68F
<b>Boiling Point:</b>	Not applicable.	<b>VOC Content:</b>	75.0 g/L.
<b>Evaporation Rate:</b>	Not applicable.	<b>Solubility in Water:</b>	Soluble.
<b>Specific Gravity:</b>	1.5	<b>pH:</b>	Not determined.

## FIRE AND EXPLOSION HAZARD DATA

<b>Flash Point:</b>	Non-flammable.	<b>Flammable Limits:</b>	Not applicable.
<b>Extinguishing Media:</b>	Not applicable. Use extinguishing media as appropriate for surrounding fire.		
<b>Special Fire Fighting Procedures:</b>	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
<b>Unusual Fire and Explosion Hazards:</b>	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

## REACTIVITY DATA

<b>Stability:</b>	Stable.	<b>Hazardous Polymerization:</b>	Will not occur.
<b>Incompatibility:</b>	Strong acids, peroxides, and oxidizing agents.		
<b>Decomposition Products:</b>	Thermal decomposition can yield CO and CO <sub>2</sub> .		
<b>Conditions to Avoid:</b>	None known.		

## HEALTH HAZARD DATA

<b>Known Hazards:</b>	None known.
<b>Signs and Symptoms of Exposure:</b>	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
<b>Medical Conditions Aggravated by Exposure:</b>	Eye and skin conditions.
<b>Routes of Exposure:</b>	Dermal.

**Carcinogenicity:** IARC classifies crystalline silica (quartz sand) as Group I based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. This product does not pose a dust hazard; therefore, this classification is not relevant. Based upon the nature and intended use of this product, it does not pose an increased cancer risk to workers.

### EMERGENCY AND FIRST AID PROCEDURES

**Eyes:** Immediately flush with plenty of water. Call a physician if symptoms occur.

**Skin:** Immediately wipe off material and wash with soap and water. Material can adhere to the skin. If material has adhered to the skin, use an abrasive containing hand cleaner. If material does not come off, buff with a pumice stone.

**Inhalation:** Move victim to fresh air if discomfort develops. Call a physician if symptoms persist.

**Ingestion:** Seek medical attention. Do not induce vomiting unless directed by a physician. If a large quantity was ingested, give 1 to 2 glasses of water to dilute. Never give anything by mouth to an unconscious person.

**Other:** Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

### CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

**Ventilation:** General (natural or mechanically induced fresh air movements).

**Eye Protection:** Not required, however, safety glasses should be worn in most industrial settings.

**Skin Protection:** Avoid skin contact. Cloth gloves are suitable for hand protection.

**Respiratory Protection:** None normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

### PRECAUTIONS FOR SAFE HANDLING AND USE

**Handling and Storing Precautions:** Store in a cool, dry area preferably between 40° and 77° F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.

**Spill Procedures:** Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

### REGULATORY INFORMATION

**Hazard Communication:** This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**HMIS Codes:** Health 1, Flammability 0, Reactivity 0, PPE B

**DOT Shipping Name:** Not regulated.

**IATA / ICAO Shipping Name:** Not regulated.

**TSCA Inventory Status:** Chemical components listed on TSCA inventory.

**SARA Title III, Section 313:** This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).

**EPA Waste Code(s):** Not regulated by EPA as a hazardous waste.

**Waste Disposal Methods:** Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

### CONTACTS

**Customer Service:** 1 800 879 8000      **Technical Service:** 1 800 879 8000

**Health / Safety:** 1 800 879 6000      Jerry Metcalf      (x6704)

**Emergency # (Chem-Trec):** 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

# Certificate of Compliance

Certificate Number 20100512-R13240

Report Reference 2010 May 12

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**Underwriters  
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*Issued to:* **Hilti, Inc.**

54 S 122ND East AVE  
Tulsa, OK 74146 USA

*This is to certify that  
representative samples of*

**Fill, Void or Cavity Materials  
FS-ONE**

*Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized  
licensee of UL in accordance with the Standard(s) indicated on this Certificate.*

*Standard(s) for Safety:*

ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05  
Third Edition, revised March 1, 2010

*Additional Information:*

FS-ONE Sealant for use in Joint Systems and FS-ONE for use in  
Through-Penetration Firestop Systems as currently described in the UL Fire  
Resistance Directory.

**Only those products bearing the UL Classification Mark should be considered as being covered by UL's Classification and Follow-Up Service.**

The UL Classification Mark includes: UL in a circle symbol:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

**Look for the UL Classification Mark on the product**

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