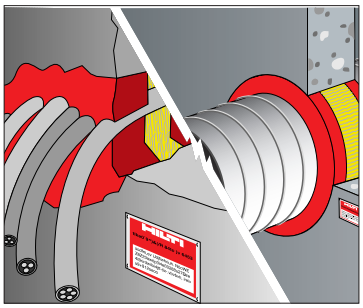
FS-ONE

High Performance Intumescent Firestop Sealant



System Advantage / Customer Benefits

- Protects most typical firestop penetration applications
- Easy to work with and fast cleanup
- Can be painted
- Single component systems available

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

Areas of application

- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes (50 pa. test)
- HVAC penetrations

For use with

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

Examples

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

Installation instructions for FS-ONE

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.

Notice about approvals

- Check that the penetration has been sealed according to the specified drawing in the UL/cUL Fire Resistance Directory or Hilti Firestop Manual. For further advice, please contact Hilti customer service. Refer to Hilti product literature and UL fire resistance directory for specific application details.

Not for use...

- High movement expansion joints
- Underwater
- 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

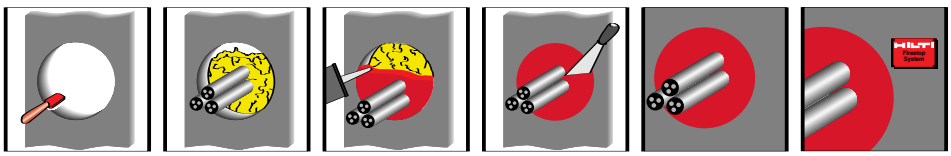
Safety precautions

- Before handling, read the product and Material Safety Data Sheet for detailed use and health information
- Keep out of reach of children
- Wear suitable gloves and eye protection

Storage

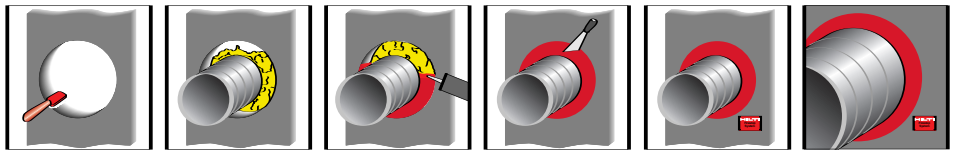
- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packaging

CABLE



1. Clean opening. *2. Pack mineral wool. (If required)* *3. Apply FS-ONE.* *4. Smooth FS-ONE.* *5. Leave completed seal undisturbed for 48 hours.* *6. Fasten identification plate (if required).*

PIPE



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FS-ONE

Technical Data

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

Chemical basis
Water-based intumescent acrylic dispersion

Density
Approx. 1.5 g/cm³

Color
Red

Working time
Approx. 20-30 min.

Curing time
Approx. 2 mm / 3 days

Shore A Hardness
Approx. 50

Movement capability
Approx. 5%

Intumescent Activation
Approx 482°F (250°C)

Expansion rate (unrestricted):
Up to 3-5 times original volume

Temperature resistance (cured)
–40°F to 212°F (–40°C to 100°C)

Application temperature
41°F to 104°F (5°C to 40°C)

Surface burning characteristics (ASTM E 84-96)
Flame Spread: 0
Smoke Development: 5

Sound transmission classification (ASTM E 90-99) 56

Tested in accordance with

- UL 1479
- ASTM E 814
- ASTM E 84
- CAN4-S115-95M

Internationally tested and approved

C UL US CLASSIFIED
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

FM APPROVED

UL
UNDERSRITERS LABORTORIES OF CANADA
LISTED FIRESTOP SYSTEM COMPONENT 00729A
FOR USE AS A COMPONENT IN THE APPROPRIATE
FIRESTOP SYSTEMS. FOR DETAILS OF FIRE RATED
SYSTEMS SEE ULC LIST OF EQUIPMENT AND
MATERIALS, VOLUME III FIRE RESISTANCE RATINGS
(AND SUPPLEMENT THERETO)

FGG =BM= SYSTEM COMPATIBLE

latest product information : www.ca.hilti.com

ordering information see page: **29**

MSDS No.: 259C
Revision No.: 005
Revision Date: 08/17/04
Page: 1 of 2

Product identifier: **FS-ONE High Performance Intumescent Firestop Sealant**

Product use: Impedes the passage of fire, smoke and water through fire-rated walls and floors for up to 4 hours.

Supplier: Hilti (Canada) Corporation, 6790 Century Avenue, Suite #300, Mississauga, Ontario L5N 2V8

Originator Hilti, Inc., P. O. Box 21148, Tulsa, Oklahoma, USA 74121

Emergency number: Chem-Trec: 1 800 424 9300

INGREDIENTS INFORMATION

Ingredient	CAS Number	% (wt.)	LC_{50}, (rat)	LD_{50} (rat)	TLV	STEL
Polyacrylate dispersion	Mixture	30 - 40	N/Av	N/Av	N/E	N/E
Calcium carbonate	01317-65-3	15 - 20	N/Av	N/Av	10 mg/m^3	N/E
Zinc borate	138265-88-0	10 - 15	N/Av	N/Av	NE	N/E
Ammonium polyphosphate	68333-79-9	05 - 10	N/Av	N/Av	N/E	N/E
Talc	14807-96-6	05 - 10	N/Av	N/Av	2 mg/m^3	N/E
Expandable graphite	12777-87-6	01 - 05	N/Av	N/Av	2 mg/m^3	N/E
Ethylene glycol	00107-21-1	01 - 05	10,876 mg.kg	4,700 mg/kg	100 mg/m^3	N/E
Polybutene	09003-29-6	01 - 05	N/Av	N/Av	N/E	N/E
Ferric oxide	01309-37-1	01 - 05	N/Av	N/Av	5 mg/m^3	N/E
Glass filament	65997-17-3	01 - 05	N/Av	N/Av	5 mg/m^3 (T)	N/E
Water	07732-18-5	01 - 05	N/Av	N/Av	N/E	N/E
Silicon dioxide	14808-60-7	< 0.2	N/Av	N/Av	0.1 mg/m^3	N/E

PHYSICAL PROPERTIES

Appearance / Physical state:	Red paste.	Odour:	Odourless.
Specific gravity (at 20ºC):	1.5	VOC Content:	75.0 g/L
Vapour pressure (at 20ºC):	23 mbar	Vapour density:	Not applicable.
Evaporation rate:	Not determined.	Boiling point:	Not determined.
Freezing point:	Not determined.	pH:	Not determined.
Coefficient of H20 / oil distrib:	Not determined.	Solubility in water:	Soluble.

FIRE AND EXPLOSION DATA

Flash point / Method:	Nonflammable.	Flammable limits:	Not applicable.
Conditions of flammability:	Not applicable.	Auto-ignition temperature:	Not applicable.
Means of extinction:	As appropriate for surrounding fire (e.g. Water, CO2, Dry Chemical, Foam).		
Special fire fighting procedures:	None known. A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.		
Hazardous combustion products:	Thermal decomposition products such as oxides of carbon and nitrogen can be produced under fire conditions. See below.		
Sensitivity to mechanical impact / static discharge:	Not susceptible to mechanical impact or to a static discharge.		

REACTIVITY DATA

Stability:	Stable.	Conditions of reactivity:	None known.
Incompatible materials:	Strong acids, peroxides and oxidizing agents.		
Hazardous decomposition products:	None known. Thermal decomposition can yield oxides of carbon and nitrogen.		

MSDS No.: 259C
Revision No.: 005
Revision Date: 08/17/04

TOXICOLOGICAL PROPERTIES

Routes of exposure:	☒ Skin contact ☐ Skin absorption ☒ Eye contact ☐ Inhalation ☐ Ingestion
Acute effects of exposure:	**Eyes**: Can cause irritation or watering but injury is unlikely. **Skin:** Prolonged or repeated contact can cause irritation. **Inhalation:** No effects expected. **Ingestion:** Not a likely route of exposure. Considered to have a low acute oral toxicity.
Chronic effects of exposure:	IARC classifies silica dust as a Group 1 carcinogen based upon studies of workers in industries where there has been long-term and chronic exposure to silica dust. This product is a paste and does not pose a dust hazard; therefore, this classification is not relevant.
Synergistic materials:	None known.

FIRST AID MEASURES

Eyes:	Flush with plenty of water. Call a physician if symptoms occur.
Skin:	Wash with soap and water. Seek medical attention if any effects persist.
Inhalation:	No ill effects expected. Should discomfort occur, move to fresh air.
Ingestion:	Do not induce vomiting unless large amounts are ingested. If conscious, give plenty of water to drink. Never give anything by mouth to an unconscious person. Contact a physician immediately.
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

Engineering controls:	General (natural or mechanically induced fresh air movements).
Eye protection:	As appropriate for the work area or work being done.
Skin protection:	Cloth gloves are suitable.
Respiratory protection:	None normally required.
Other:	No additional measures are normally required.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling procedures and equipment:	For industrial use only. Keep out of reach of children. Keep container closed when not in use. Do not get into the eyes. Avoid prolonged or repeated contact with the skin. Practice good hygiene; i.e., wash after using and before eating or smoking.
Storage requirements:	Store in a cool dry area. Keep from freezing. Store between 5º and 25º C.
Spill, leak or release:	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.
Waste disposal:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, provincial, and federal safety, health and environmental regulations.
Special shipping instructions:	Avoid temperature extremes. Keep from freezing.

REGULATORY INFORMATION

WHMIS classification:	D2A, D2B
HMIS codes:	Health 1, Flammability 0, Reactivity 0, PPE A
TDG shipping name:	Not regulated.

PREPARATION INFORMATION / CONTACTS

Prepared by:	Hilti, Inc., Tulsa, OK USA
Emergency phone number:	1 800 424 9300
Customer Service:	Hilti (Canada) Corporation, Mississauga, Ontario; 1 800 363 4458
Health / Safety contacts:	Hilti, Inc., Tulsa, OK USA; 1 800 879 6000, Jerry Metcalf (x6704)
Abbreviations used:	**N/E** = None Established. **N/A** = Not Applicable. **N/Av** = Not Available. **R** = as "respirable fraction". **IARC:** International Agency for Research on Cancer. **HMIS:** Hazardous Materials Identification System

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 **20060214-R13240E**
Report Reference **2006 February 14**
Issue Date **2006 February 14**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.
5400 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.® in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05

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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