

## TECHNICAL DATA SHEET

# PENOSIL FireStop Silicone 331

Neutral silicone for fire spread prevention. Sealant with increased fire resistance for joints exposed to fire. Specially designed for weathersealing of expansion joints where fire resistance is required.

- Withstands fire up to 4 hours
- Elastic
- Halogen, solvent and asbestos free.
- High movement capability
- Excellent adhesion to a wide range of porous and non-porous substrates.
- Low odour
- UV radiation, weather and ageing resistant

### Fields of application

- Weathersealing expansion joints where fire resistance is required
- Sealing fire-proof window and door frames
- Sealing ventilation and smoke ducts, cable passages, pipe penetrations

### Adhering

Adheres to most common construction materials including concrete, masonry, brick, aluminium (lacquered, anodized, painted), PVC, glass, ceramics and most plastics.

### Application instructions

#### Application conditions

Application temperature between +5 °C and +40 °C.

#### Surface preparation

The surfaces must be dry, clean from dust, loose particles and oil. Non-porous surfaces should be cleaned with solvent and a clean, non-fluffy cotton cloth. Solvent excess should be removed before evaporating with a clean cloth.

#### Application method

Cartridge: cut off the threaded end of the cartridge and screw on the application nozzle for directing sealant. Cut the threaded end in a way where a suitable opening for application is produced. Place the cartridge together with the applicator in the gun and fill the installation nozzle with sealant, by repeatedly pressing the gun trigger.

Foil package: open the end of the foil pack and place the pack inside the gun so that the dosing nozzle keeps covering its open portion. Place the dosing nozzle on the open end and screw on the cap to close the tube. Cut the nozzle to create a suitable opening for dosing sealant.

Apply sealant in the joint by repeatedly and evenly pressing on gun trigger and smoothly dragging the nozzle along the joint. After application, smooth the surface with a suitable tool (e.g., spatula) and remove excess material.

If necessary, the adjacent surfaces of the joint should be protected to avoid staining. Usually, masking tape is used for this. Protective masking tapes should be removed before the sealant's skin is formed.

In wider and movable joints, backer rod should be used as a back-up material, to ensure the correct thickness and shape of sealant joint and to avoid three-sided adhesion.

Ensure adequate ventilation in all joint locations. During the curing process, make sure that no impurities can settle on the surface and that the joint surface is not affected by mechanical load.

#### Cleaning

Uncured sealant can be cleaned with solvents like white spirit, acetone or with PENOSIL Cleaning Wipes. Cured sealant can be removed mechanically. If needed silicone remover should be used.

## Technical data

Properties	Value	Unit
Basis	Oxime	
Density (DIN 53 479-B)	1,25	g/ml
Tack free time	5...8	min
Skin forming time	10...20	min
Curing rate	2...3	mm/24h
Application temperature	+5...+40	°C
Service temperature	-40...+150	°C
Movement capability (ISO 11600)	±25	%
Shelf life	12	months
Shore A hardness (ISO 868)	22...26	
E-Modulus 100% (ISO 37)	0,38	N/mm <sup>2</sup>
Tensile strength (ISO 37)	1,6	N/mm <sup>2</sup>
Elongation at break (ISO 37)	>600	%

The values specified were obtained at +23 °C and 50% relative humidity, unless otherwise specified. These values may vary depending on environmental factors such as temperature, moisture and type of substrates.

## Technical classification and certificates

- FIRE RESISTANCE classification according to EN 13501-2
- Tested according to EN 1366-4 "Fire resistance test for service installations. Linear joint seals" (Equivalent to BS 476, Part 20)
- Tested according to EN 1366-3 "Fire resistance test for service installations. Penetration seals"
- FIRE PERFORMANCE classification: B-s3, d0 according to EN 13501-1
- Tested according to EN 13823: "Reaction to fire tests for building products" and EN-ISO 11925-2 "Ignitability of building products subjected to direct impingement of flame"
- Sealant for facade for interior and exterior application, suitable for use in cold climate  
EN 15651-1:2012: Type F-INT-EXT-CC: CLASS 25HM

## Colour

White, grey.

## Package

300 ml cartridge, 12 pcs in a box  
400 ml foil package, 28 pcs in a box.  
600 ml foil package, 20 pcs in a box.

## Storage conditions and shelf life

Guaranteed shelf life 12 months from the manufacturing date when stored in closed original package in a dry place and protected from direct sunlight at temperatures between +5 °C and +30 °C.

## Fire rating

### Fire resistance according to EN 1366-4 Linear joints

Sealant dimensions		Backing material	Orientation	Rating acc. EN 1366-4		Classification according EN 13501-2	Nº report
Width (mm)	Depth (mm)			Integrity (E) (min.)	Insulation (I) (min.)		
10 <sup>(1)</sup>	8	MW	Horizontal	182*	182*	E 180 EI 180-T-X-F-W 10 to 100	27874-2-1
10 <sup>(1)</sup>	8	MW	Horizontal	180	180	E 180 EI 180-T-X-F-W 10 to 10	27388-1
100 <sup>(1)</sup>	30	MW	Horizontal	182*	182*	E 180 EI 180-T-X-F-W 10 to 100	27874-2-1
10 <sup>(2)</sup>	8	MW	Vertical	182*	182*	E 180 EI 180-V-X-F-W 10 to 100	27874-2-2
10 <sup>(2)</sup>	10	MW	Vertical	242	242	E 240 EI 240-V-X-F-W 10 to 10	13_02508-1
30 <sup>(2)</sup>	15	MW	Vertical	246	194	E 240 EI 280-V-X-F-W 00 to 30	17067-4
40 <sup>(2)</sup>	20	MW	Vertical	246	246	E 240 EI 240 V-X-F-W 00 to 40	17067-4
60 <sup>(2)</sup>	30	MW	Vertical	100	107	E 90 EI 90-V-X-F-W 60 to 60	13_02508-1
80 <sup>(2)</sup>	40	MW	Vertical	242	242	E240 EI240-V-X-F-W 80 to 80	13_02508-2-12-3
100 <sup>(2)</sup>	30	MW	Vertical	241	241	E 240 EI 240 V-X-F-W 10 to 100	25491-1
150 <sup>(2)</sup>	30	MW	Vertical	241	241	E 240 EI 240 V-X-F-W 00 to 100	25491-1
10 <sup>(3)</sup>	10	FR-PU	Vertical	242	242	E 240 EI 240 V-X-F-W 10 to 10	13_02508-1
60 <sup>(4)</sup>	30	FR-PU	Vertical	242	242	E 240 EI 240 V-X-F-W 60 to 60	13_02508-2-3-a
60	30	FR-PU	Vertical	246	246	E 240 EI 240 V-X-F-W 00 to 60	13_02508-2-14-1
10 <sup>(5)</sup>	10	PE	Vertical	114	88	E 90 EI 60 V-X-F-W 10 to 10	13_02508-1
40 <sup>(6)</sup>	10	PE	Vertical	246	164	E 240 EI 120 V-X-F-W 00 to 40	17067-4
40 <sup>(7)</sup>	30	PE	Vertical	242	242	E 240 EI 240 V-X-F-W 40 to 40	13_02508-2-8-a

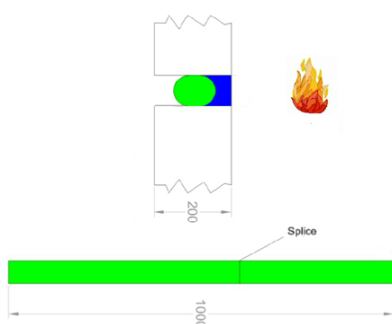
Legend: \*Test stopped after 3 hours.

MW: Mineral Wool Backer Rod / FR-PU: Fire Rated PU foam / PE: Polyethylene Backer Rod

V: Vertical supporting construction – vertical joint; X: No movement; F: Field (Joint made following real conditions); W: joint width

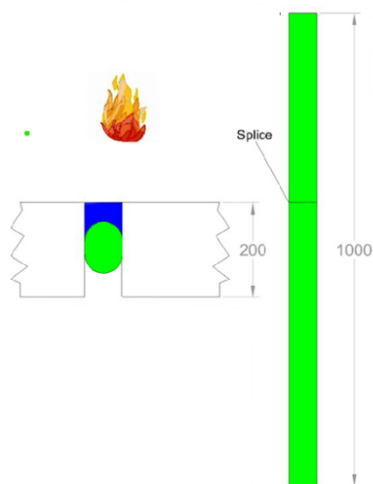
Remark: Fire Rated Foam: PENOSIL Premium FireRated Gunfoam; Mineral Wool Backer Rod: PENOSIL FibreFoc

Test sample 1



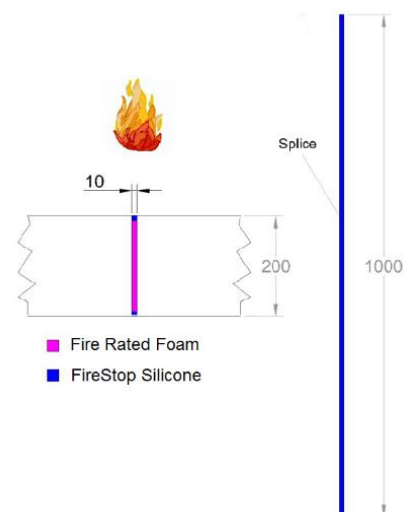
- Mineral Wool Backer Rod
- FireStop Silicone

Test sample 2



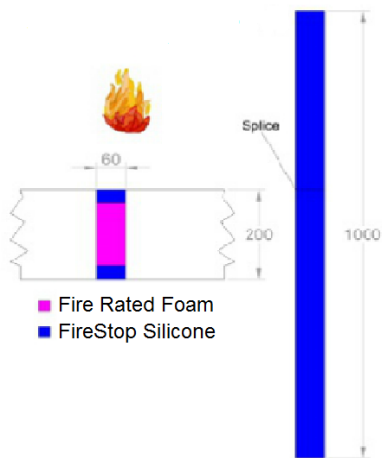
- Mineral Wool Backer Rod
- FireStop Silicone

Test sample 3

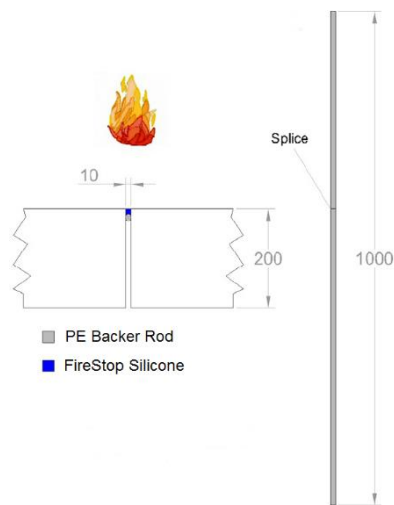


- Fire Rated Foam
- FireStop Silicone

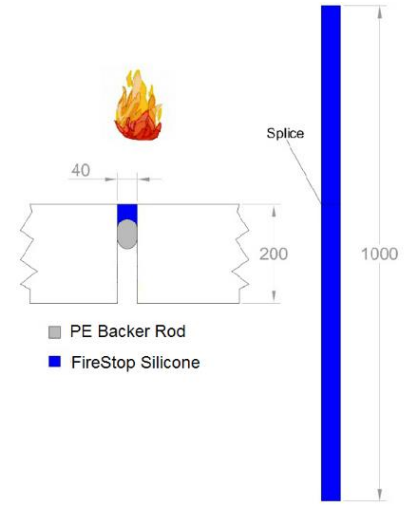
Test sample 4



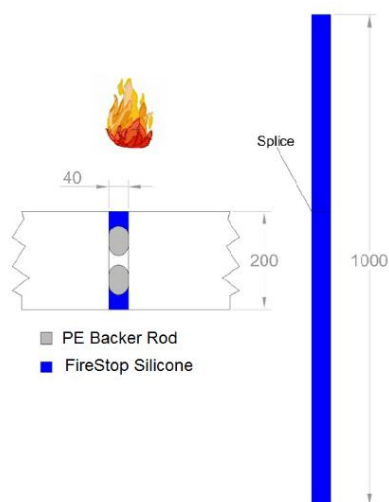
Test sample 5



Test sample 6



Test sample 7



## Fire resistance according to EN 1366-3 Penetration sealing system

Type of sealing system "sealant+foam+sealant"

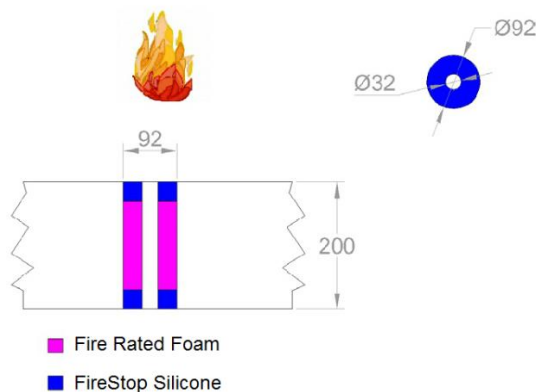
PVC Piping diameter* (mm)	Thickness of sealing system (mm)	Sealant thickness (mm)	Length of foam layer (mm)	Rating acc. EN 1366-3		Classification according to EN 13501-2	Nº report
				Integrity (E) (min.)	Insulation (I) (min.)		
32 <sup>(8)</sup>	30	30	140	241	230	EI 180 U/U** E 240 U/U**	22/32301562
50 <sup>(9)</sup>	40	30	140	241	117	EI 90 U/U** E 240 U/U**	22/32301562

\*Pipe wall thickness 3,0 mm

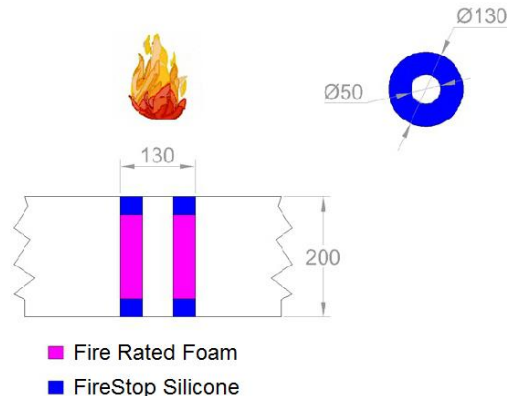
\*\*Pipe end configurations: U: Uncapped (both inside and outside the furnace) /Tests applicable to lower diameter

Remark: Fire Rated Foam: PENOSIL Premium FireRated Gunfoam

Test sample 8



Test sample 9



## Limitations

- Do not use on bituminous substrates or on building materials which might bleed oils, plasticizers or solvents (e.g. natural rubber, chloroprene, EPDM, ...).
- There is no adhesion to PE, PP, PTFE (Teflon®).
- We don't recommend this product to be used for natural stone sealing.
- Due to the wide variety of possible substrates, we recommend a preliminary compatibility and adherence test. If necessary, prime surfaces to improve adhesion.
- Due to the wide variety of influences during and after application, the customer must always test the product first.
- Please observe the expiration date!

## Safety regulations

Ensure sufficient ventilation during application and wear necessary personal protective equipment. More specific safety information is available on the safety data sheet (SDS).

Note: The instructions in the present documentation are based on tests carried out by the manufacturer and are presented in good faith. Due to variations in materials and substrates as well as the various application possibilities that are beyond our control, the manufacturer is not liable for the results achieved. In any case, it is recommended to test the product suitability at the place of application. Manufacturer reserves the right to modify products without prior notice. This TDS replaces and supersedes all previous data sheets on the same product.