Construction

Sika® Firerate PU

One part polyurethane fire rated joint sealant with outstanding UV resistance

Positioning

Description

Firerate PU is a one component, low modulus, gun grade, non-sag, moisture-cure polyurethane sealant with outstanding UV resistance. Firerate PU is designed to cure into a fire rated, elastic weatherproof seal.

Use

Firerate PU is designed for sealing exterior and interior movement joints where a fire rating of up to 4 hours is required in:

- Expansion and construction joints
- Tilt-up construction
- Precast and in-situ concrete
- Brick and blockwork
- Service penetrations (metal pipes) through walls
- Sealing in conjunction with fire collars or pillows
- Window and door frame perimeter joints
- Areas requiring intumescent sealing

Advantages

- Fire rated up to 4 hours (AS1530 part 4, AS4072 part 1)
- Superior UV resistance and durability
- Permanently flexible
- Non-staining
- Paintable
- Single component - no mixing required
- Excellent adhesion with no primer
- Fast skinning time
- Long shelf life

Tests
Approvals / Standards
Standards compliance

- AS1530 Part 4 - 1997 (Fire Resistance Tests of Elements of Building Construction) and AS4072 part 1 – 1992 (Service penetrations and control joints). Tested by BRANZ.
- BS476 pt 20 1987 - Fire Testing for Building Materials.

Product Data

Form: PU based intumescent sealant

Colour: Grey

Packaging: Firerate PU is supplied in 600 ml sausages, 12 sausages per carton.

Storage/Shelf Life: Twelve (12) months from date of production when stored in cool, dry conditions in original unopened containers.

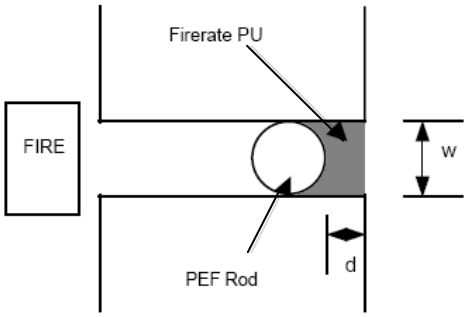
Technical Data

Density:	1.61 kg/litre
Service temperature:	Minus 40°C to 90°C
Application temperature:	5°C to 40°C
Shore A Hardness:	40 – 45
Movement capacity (expansion-contraction):	± 25%
Skin time:	1.5 - 2 hours @ 23°C, 50% RH
Cure rate:	3 mm in 24 hours @ 23°C, 50% RH

Design Criteria

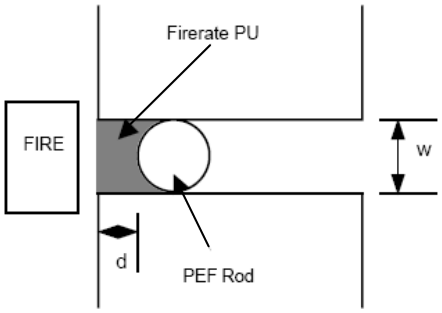
- Firerate PU may be used in joints from 5mm to 40 mm wide.
- Joint depth should not be less than 10 mm. For joints over 20 mm wide, depth should be half of the width.
- Refer to fire test data (Table 1) for correct joint size and orientation to achieve required fire rating.

Diagram 1: Vertical and horizontal wall joints - single side seal remote from fire



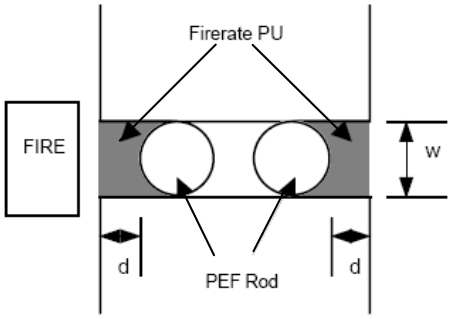
w = either 20 mm (test specimen 5)
or 40 mm (test specimen 2)
d = 10 mm or w/2, whichever is the greater

Diagram 2: Vertical and horizontal wall joints - single side seal exposed to fire



w = either 20 mm (test specimen 1)
or 40 mm (test specimen 3)
d = 10 mm or w/2, whichever is the greater

Diagram 3: Vertical and horizontal wall joints - both sides sealed



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w = either 20 mm (test specimen 4)
or 40 mm (test specimen 6)
d = 10 mm or w/2, whichever is the greater

TABLE 1 Results of BRANZ Fire Tests, to AS1530 part 4 (1997) and AS4072 part 1 (1992)

JOINT TYPE (SEAL ORIENTATION)	Diagram Number	Fire Test Specimen Number	Seal Size (width x depth)	Integrity Rating (minutes)	Insulation Rating (minutes) in concrete wall thickness at least:		
					120mm	150mm	180mm
Single side seal only on side remote from fire	1	5	20 x 10	240	60	60	60
		2	40 x 20	240	60	60	60
Single side seal only on side exposed to fire	2	1	20 x 10	240	90	120	180
		3	40 x 20	240	120	180	240
Both sides sealed	3	4	20 x 10	240	120	180	240
		6	40 x 20	240	120	180	240

NOTE: All tests performed using Sika PEF Rod as backing material.

Application Conditions

Preparation

- The joint surfaces must be thoroughly dry, clean, and free of frost, oil or grease.
- Remove all dirt, dust, laitance, loose material, mould release and curing agents, and foreign matter by rigorous wire brushing, grinding or grit blasting.
- Remove all rust, scale and protective lacquers from metal surfaces.
- Degrease non-porous (metal etc) surfaces with Sika TCN Thinner/Cleaner.
- The sealant should be supported by a polyethylene foam backing cord or strip such as Sika Expandafoam or PEF Rod.
- Do not puncture the closed cell structure of closed cell polyethylene rod as bubbles could form and migrate to the surface of the curing sealant.
- For construction or contraction joint slots a bond breaker or back up tape should be used.
- Where a particularly neat finish is required, mask the face edges of the joint with masking tape before priming and remove after tooling is complete.

Priming

- Firerate PU will adhere to most common construction substrates and perform in uncontaminated joints without the need of a primer.
- Substrates include but are not limited to concrete, marble, granite, anodised aluminium, mill finished aluminium, galvanised surfaces, glass fibre reinforced plastic (GRP), and wood.

Application

- Insert sachet into Sika sausage hand gun.
- Cut end off sachet and attach cap and nozzle.
- Cut nozzle to desired bead size.
- Extrude the sealant firmly into the joint.
- Tool the sealant surface using a suitable curved tool.
- Apply adequate tool pressure to spread the sealant against the back-up material and into the joint faces.
- Use only clean water to lubricate tool if required (DO NOT USE SOAP OR DETERGENT IN WATER).
- Remove masking tape immediately after tooling, before skin begins to form.

Cleaning

Clean tools immediately after use with Sika TCN Thinner/ Cleaner.

Important Notes

Limitations

- Firerate PU is not recommended for:
  (a) Use in continuous immersion conditions.
  (b) Use in contact with bitumens.
  (c) Horizontal joints in floors or decks where direct physical wear is encountered.
- The fire rating of Firerate PU is specific to the tests quoted in this datasheet.
- Users should satisfy themselves that the test results are applicable to their own installations.
- The chemical resistance of Firerate PU is limited and exposure to solvents, oils and other chemicals should be restricted to infrequent contact.

Notes

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

Health & Safety Instructions

Protective Measures

- To avoid rare allergic reactions, we recommend the use of protective gloves. Change soiled work clothes and wash hands before breaks and after finishing work.
- Local regulations as well as health and safety advice on packaging labels must be observed.
- For further information refer to the Sika Material Safety Data Sheet which is available on request.
- If in doubt always follow the directions given on the pack or label.

Construction

Important Notes

- Residues of material must be removed according to local regulations. Fully cured material can be disposed of as household waste under agreement with the responsible local authorities.
- Detailed health and safety information as well as detailed precautionary measures e.g. physical, toxicological and ecological data can be obtained from the safety data sheet.

Legal Notes

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Sika (NZ) Ltd
PO Box 19192
Avondale
Auckland
New Zealand

Phone: 0800 SIKA NZ 0800 745 269
Fax: 0800 SIKA FAX 0800 745 232
Email: info@nz.sika.com www.sika.co.nz

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