



constructive solutions

# Flamex Fire Protection

## Flexible intumescent sealants

### Uses

Flamex products can be used to maintain the continuity of fire rated walls, floors and ceilings, confining smoke and fire, giving extra time for people to escape from a fire situation. They also perform as effective building sealants.

### Advantages

- Suitable for fire stopping of joints as defined by Approved Document B of the United Kingdom Building Regulations.
- Fire tested in accordance with BS476 Part 20:1987.
- Tested in overhead joints as well as in wall joints.
- Prevents the passage of smoke through joints under fire conditions.
- Effective as normal building sealants.

### Standards Compliance

Tested in accordance with BS 476 Part 20:1987, Flamex 2 meets the performance requirements of BS 4254 : 1983 for two part polysulphide.

### Description

Flamex is a high performance two-part intumescent sealant based on our proven polysulphide technology. It is supplied as pre-measured components in one container which, once mixed, cures to form a tough, flexible rubber like seal with excellent movement performance.

Flamex One is an emulsion based intumescent sealant supplied in a cartridge which sets quickly forming a flexible rubbery seal possessing excellent adhesion to most building materials.

Flamex Ceramic Strip is a ceramic fibre based blanket materials which is used as a joint packing and is supplied in strips 150 mm wide x 13 mm thick. It is non-combustible and has excellent fire insulation properties. Flamex Ceramic Strip is made from long ceramic fibres, ensuring good resilience and flexibility and is made without the use of binders; thus avoiding additional smoke hazards during a fire.

### Technical support

Fosroc offers a comprehensive range of high performance, high quality flooring, jointing and repair products for both new and existing floor surfaces. In addition, Fosroc offers a technical support package to specifiers, end-users and contractors, as well as on-site technical assistance in locations all over the world.

### Design criteria

#### Joint design

Flamex can be used in joints from 5 mm up to 50 mm wide. The depth of sealant should be half the width, with a minimum depth of 12 mm. In trafficked joints, sealant depth should be a minimum of 20 mm.

Flamex One may be used in low movement joints from 5 mm to 20 mm wide. The minimum depth of wet seal should be 15 mm. The sealant will form a concave surface when cured.

#### Joint backing

Hydrocell, Expandafoam and Bitucell are suitable joint backing materials for the sealant. Please see separate data sheets for further details.

Flamex Ceramic Strip is used in conjunction with Flamex sealants to give 4 hours insulation in soffit joints 30 mm wide and in wall joints depending to the joint design. The strips 150 mm wide are cut into suitable lengths, doubled over and inserted into the joint. The strip should be pushed as near as possible to the middle of the joint, Expandafoam or Expacell is then used to control the depth of the sealing slot.

The specification of different joint widths is given below

#### Flamex Ceramic Strip (13 mm x 150 mm wide)

	Joint width
<b>1 strip 150 mm doubled around a halved strip 75 mm wide:</b>	30 mm*
<b>2 strips doubled:</b>	40 mm
<b>2 strips doubled:</b>	50 mm

\* 4 hours rating

Flamex is suitable for use in expansion joints in compartment walls and soffits, where a high degree of movement accommodation and fire rating is required. The sealant may be used in external as well as internal joints.

### Specification clauses

Where designated on the drawing, joints are to be sealed using Flamex intumescent building sealants manufactured by Fosroc. The sealant should be tested in accordance with BS 476 Part 20:1987.

In joints where movement is anticipated, the joint sealant should have been tested for compliance with BS 4254:1983.

Joint should be prepared and the sealant applied in accordance with the company's current data sheet.

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## Properties

Extensive fire testing has been carried out on Flamex range. Testing has been carried out in accordance with BS 476 Part. 20:1987 at the Technical Centre of the Loss Prevention Council (LPC).

The following summary of tests results is extracted from LPC test reports TE 7701, TE 7702, TE 7703, TE 7787 and TE 80169.

## Results summary

**Flamex Two** - Two part polysulphide intumescent sealant

### Soffit joints

	Joint width X depth	Backing material	Insul- ation	Integrity
In concrete	15x12 mm 20x12 mm	Expandafoam "	>4 hrs >4 hrs	>4 hrs >4 hrs
Joint sealed	25x12 mm 30x15 mm 30x15 mm	" " "	>4 hrs 3.5 hrs	>4hrs >5 hrs
	45x25 mm 50x25 mm 50x25 mm	Flamex Ceramic Strip " Expandafoam Flamex Ceramic Strip	>5 hrs >5 hrs 2 hrs >5 hrs	>5 hours >5 hrs 2 hrs >5 hrs

### Wall joints

Lightweight blocks	10x12 mm 25x12 mm	Expandafoam	>5 hrs >3 hrs	>5 hrs 3.5 hrs
Concrete lintel to lightweight blocks	20x12 mm 40x20 mm	Expandafoam	>5 hrs 4 hrs	>5 hrs 4.5 hrs

**Flamex One** - One-part intumescent sealant

### Wall joints

Single seal in lightweight blocks	20x20 mm	Expandafoam	40 mins	50 mins
Double seal in lightweight blocks	10x15 mm	Expandafoam	>4 hrs	>4 hrs
Building board to lightweight blocks (single seal)	10x15 mm	Expandafoam	30 mins	70 mins
Lightweight blocks to hardwood frame	15x15 mm	Expandafoam	2 hrs	2 hrs
Lightweight blocks to concrete lintel	15x15 mm	Expandafoam	3.5 hrs	>4 hrs

## Conduit wall penetration

	Joint width X depth	Backing material	Insul- ation	Integrity
20 mm conduit in normal 50 mm hole	15x20 mm	Expandafoam	3.5 hrs	>4 hrs
25 mm conduit in normal 50 mm hole	12x20 mm	Expandafoam	2.5 hrs	>4 hrs

## Technical data - Flamex

<b>Solids content:</b>	100%
<b>Density:</b>	1.61 kg/litre
<b>Skimming time: (typical rates)</b>	96 hours at 5°C 48 hours at 15°C 24 hours at 25°C
<b>Cure time: (typical rates)</b>	4 weeks at 5°C 2 weeks at 15°C 1 week at 25°C
<b>Hardness shore at 'A' 25°C:</b>	30-38, typical 34 (7 days cure 25°C, 50% RH)
<b>Movement accommodation factor (MAF):</b>	25% butt joints, 50% lap joints

## Technical data - Flamex One

<b>Solids content:</b>	85%
<b>Density:</b>	1.48 kg/litre
<b>Skimming time:</b>	20-40 minutes, depending on temperature and relative humidity
<b>Cure time:</b>	As a guide a 20x15 mm joint is fully cured in 28 day at 25°C, 50% RH. Smaller joints will cure more quickly. A fairly advanced state of cure is reached at 7 days under the same conditions
<b>Hardness shore at 'A' 25°C:</b>	30-50, typical 45 (28 days cure 25°C, 50% RH)
<b>Movement accommodation factor (MAF):</b>	10% butt joints

## Technical data - Flamex Ceramic Strip

<b>Density:</b>	64 kg/m <sup>3</sup>
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## Application instructions

### Joint preparation

The joint surfaces must be thoroughly dry, clean and frost free. Remove all the dust and laitance by rigorous wire brushing, grinding or grit blasting. Remove all rust, scale and protective lacquers from metal surfaces. Remove any oil or grease with joint cleaner.

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The sealant should be supported by polyethylene foam backing cord or strip such as Expandafoam or Expancell, and in expansion joints by an expansion joint filler such as Hydrocell, Expandafoam sheet or Bitucell.

Any expansion joint filler must be checked to ensure it is tightly packed and no gaps or voids exist at the base of the sealing slot, before positioning a bond breaker.

Note: The use of a bond breaker is not required in expansion joints containing Hydrocell, Expancell or Expandafoam joint fillers. For construction or contraction joint slots and with other expansion joint fillers a bond breaker or backup tape should be used.

Where Flamex Ceramic Strip is required it should be installed before priming, by folding and inserting into the joint using two thin metal plates to compress the strip and push it into the joint at the same time. Expandafoam is then placed over Flamex Ceramic Strip before joint sealing takes place.

Gunning of the sealant must be carried out with particular care, ensuring good contact is made with the joint sides. For very wide joints it may be necessary to apply the sealant in two or more passes.

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

### Flamex (two-part sealant)

Porous surfaces: All porous surfaces such as concrete, stone, brickwork, block work and timber, must be primed with Primer 7.

Apply by brush, working in well, ensuring complete coverage. Avoid over priming resulting in an excess of primer in the base of the joint or beyond the joint faces. The mixed Flamex should be applied when the Primer 7 is tack free, normally within 20 minutes to 1 hour - that is after the evaporation of the solvent but before the prime film has completely reacted. After 3 hours the surfaces must be re-primed before applying the sealant.

Porous surfaces may require a second coat of primer. This is applied once the first coat is thoroughly dry.

Non-porous surfaces: All non-porous surfaces should be primed with Primer 4. The sealant should be applied after the primer is tack free but within 3 hours. Iron and steel must be treated with a suitable anti-corrosion primer to prevent corrosion.

### Flamex One

In most cases priming is not required. On excessively porous surfaces such as some renders and aerated light-weight blocks, a primer made by diluting a small quantity of Flamex One 1:3 by volume with water should be applied onto the joint sides and allowed to become tack free before sealing.

## Mixing

Flamex: Both the base component and curing agent are supplied ready for mixing in a single tin. Mix thoroughly using a slow speed drill (300-500 rpm) fitted with a Paddle Stirrer for a full 5 minutes. Only thorough mixing will result in proper curing. In cold weather Flamex mixes more easily if stored overnight at room temperature. Immediately after mixing, load the sealant in to a 'G' Gun and apply to the joint.

Application life is approximately 2 hours at 25°C.

## Finishing

Flamex should be tooled to a smooth finish. A minimal amount of surface lubricant such as dilute detergent solution may be used to assist the process.

Flamex One is applied using a 'W' Gun and should be tooled off within 15 minutes of sealing using water or very dilute detergent solution. Any masking tape should be removed immediately after tooling. Normally Flamex joints will be flush and unpainted.

If required, the sealants may be painted with conventional decorative paint but consideration should be given to movement subsequently taking place and causing cracking of the paint finish.

## Cleaning

Uncured Flamex should be cleaned from equipment using Solvent 102. Uncured Flamex One may be cleaned from tools and neighbouring surfaces using a damp cloth and water.

## Limitations

The fire rating of Flamex sealants is specific to the tests quoted on this data sheet. Users should satisfy themselves that the test results are applicable to their own installations. The chemical resistance of Flamex sealant is limited and exposure to solvents, oils and other chemicals should be restricted to infrequent contact.

Not suitable for contact with bitumen or asphalt.

Flamex sealants are not designed for use in situations where water cannot freely drain away.

Flamex One is not suitable for any joints subject to trafficking.

## Application temperature

<b>Flamex</b>	:	5°C to 30°C
<b>Flamex One</b>	:	5°C to 30°C

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## Estimating

### Supply

The materials are supplied as follows:

Flamex is supplied in 2.5 litre packs with the base and curing agent packed in the same tin. 4 packs are supplied in each carton.

### Guide to quantities

Joint size in mm	Litres per metre run	Metre run per 2.5 litre pack
5x12	0.06	41.66
10x12	0.12	20.83
15x12	0.18	13.88
20x12	0.24	10.40
25x12	0.30	8.30
30x15	0.45	5.50
40x20	0.80	3.12
50x25	1.25	2.00

Flamex One is supplied in 400 ml plastic cartridges packed in cartons of 12.

### Guide to quantities

Joint size in mm	Litres per metre run	Metre run per 2.5 litre pack
10x15	0.150	2.60
15x15	0.225	1.70
20x15	0.300	1.33

Flamex Ceramic Strip is supplied as 150 mm wide strips 7.3 metres long in boxes of 8 strips.

### Guide to primer quantities

	Theoretical	Typical
Primer 4:	50-60 m <sup>2</sup> /litre	1 to 300 litre of sealant
Primer 7:	10-12 m <sup>2</sup> /litre	1 to 30 litre of sealant

Actual usage will depend on joint dimensions and other factors.

## Storage

Store sealants and primers in cool dry conditions in original containers within the range of 5°C to 25°C.

### Storage life

Flamex / Flamex One:	12 months
Primer 4:	6 months
Primer 7:	12 months

## Precautions

### Health and safety

Flamex: Flash point over 65°C. Harmful. The curing agent consists of a heavy meal based oxide. Avoid skin contact. Wear impervious rubber or PVC gloves and eye protection. Hands should be thoroughly washed with soap and water before eating or smoking. Cured sealant should not be burned off due to the generation of toxic fumes. Empty containers must be collected for careful disposal and not left lying about.

Flamex One: This product is non-hazardous, however with any material good personal hygiene practices should be followed, i.e. keep out of eyes, do not consume, keep away from children and pets. Wash hands thoroughly after use.

Flamex Ceramic Strip: Harmful by inhalation. May be irritating to skin, eyes and respiratory system. Avoid contact with skin and eyes. Do not breathe dust.

Flamex Ceramic Filler is subject to a maximum exposure limit (MEL) for man-made fibres of 5 mg/m<sup>3</sup> total dust. In normal site and installation conditions these are unlikely to be approached. Minimise airborne dust. Wear an approved dust mask/respirator if dust levels are likely to exceed MEL. Wear suitable loose-fitting, long sleeved clothing, gloves and eye protection. After handling, wash exposed skin with soap and water. Wash work clothing separately.

Primer 7: Highly flammable liquid. Flash point 23°C. Store away from heat. Do not use near a naked flame. Avoid prolonged breathing of vapour. Avoid skin contact. Wear eye protection and impervious rubber or PVC gloves. Wash hands thoroughly before eating or smoking. Water will not remove this primer. In case of eye contact seek medical attention immediately.

Primer 4: Highly flammable liquid. Flash point 13°C. Store away from heat. Do not use near a naked flame. Avoid prolonged breathing of vapour. Avoid skin contact. Wear eye protection and impervious rubber or PVC gloves. Wash hands thoroughly before eating or smoking. Water will not remove this primer. In case of eye contact seek medical attention immediately.

Joint Cleaner: Flammable liquid. Flash point 43°C. Store away from heat. Do not use near a naked flame. Use in well ventilated surroundings. Avoid skin contact and inhalation of the vapour.

Solvent 102: Flammable liquid. Flash point 33°C. Store away from heat. Do not use near a naked flame. Wear suitable protective clothing. Wash hands thoroughly before eating or smoking. In case of eye contact seek medical advice immediately.



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