RECOMMENDED APPLICATION
INSTRUCTIONS

FIRE RETARDANT COATINGS FOR CABLES
AND FIRE RESISTANT BARRIERS
FOR SERVICE PENETRATION SEALS
The below is a recommendation of application area’s for the fire protection of electrical cables and service penetration seals in order to minimize the damage to the industrial complex, where it will be used.

**MICON FLAMSAFY 325**

Micon FLAMSAFY 325 is a fire retardant mastic (coating) with excellent insulating properties designed to stop fire propagation along electrical cables. Micon FLAMSAFY 325 is also used in the construction of passive fire protection of cable/service penetration seals to prevent the spread of flame and toxic gases through service openings.

Micon FLAMSAFY 325

- tested by the C.S.I.R in accordance with the requirements and of S.A.B.S and Anglo American Specifications
- excellent insulation properties
- excellent adhesion to P.V.C cables
- FLAMSAFY 325 seals can be specified for a fire resistance rating of 2 hours with only a 100mm depth
- FLAMSAFY 325 seals are easily modified to accommodate changes in services
- FLAMSAFY 325 seals are simple to install to suit any opening
- FLAMSAFY 325 is environmentally acceptable and safely used in confined spaces

**DESCRIPTION**

FLAMSAFY 325 is a fire retardant mastic applied in a 1.6mm layer to the surface of all cables requiring fire protection. FLAMSAFY 325 seals consists of two 50mm layers of mineral wool coated with FLAMSAFY 325 (1.6mm dft) on both sides

**APPLICATION**

FLAMSAFY 325 mastic can be effectively applied by trowel, brush or hand to the surface of P.V.C armoured cables to a minimum thickness of 3mm to provide suitable protection.

FLAMSAFY 325 seals can be easily installed to allow flexibility in design for the addition of cabling or services to be installed at a later stage. This seal comprises of 100mm high-density mineral wool board, which is a non-combustible material easily compressed into difficult openings, coated on both sides with a 3mm trowelled on layer of FLAMSAFY 325. Any cables penetrating the seal are similarly coated for a distance of 500mm of either side of the seal.

All surfaces to be protected with FLAMSAFY 325 must be free from dust, grease, rust, grime, and loose paint.
ENVIRONMENT

Micon FLAMSAYF 325 is an environmentally acceptable product that can be safely applied in confined spaces.

ACTION IN FIRE

When used as a cable protection system, Micon FLAMSAYF 325 forms a protective insulating char on exposure to heat with zero spread of flame and low toxic gas emissions. On exposure to fire the FLAMSAYF 325 seal retains its integrity, prevents smoke leakage and limits transfer of heat along cables through the seal well within the test requirements.

FIRE TEST REPORTS

FLAMSAYF 325 seal

<table>
<thead>
<tr>
<th>FIRE PROPERTIES</th>
<th>TEST METHODS – S.A.B.S 0177 Part II</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Spread of flame index</td>
<td>0</td>
</tr>
<tr>
<td>- Heat contributed index</td>
<td>0</td>
</tr>
<tr>
<td>- Smoke emitted index</td>
<td>0,95</td>
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<tr>
<td>- Surface fire index</td>
<td>0,32</td>
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<tr>
<td>- Overall classification</td>
<td>Class 2</td>
</tr>
<tr>
<td>- Fire resistance rating</td>
<td>2 Hours</td>
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tested by the C.S.I.R report # BF 501/040 5600 5664021996

MICON FLAMSAYF 325

<table>
<thead>
<tr>
<th>FIRE PROPERTIES</th>
<th>TEST METHOD</th>
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<tbody>
<tr>
<td>- Fire insulation properties</td>
<td>AAC Specification 164/23</td>
</tr>
<tr>
<td>- Toxicity of combustion gases</td>
<td>NES 713</td>
</tr>
<tr>
<td>- Spread of flame index</td>
<td>0 S.A.B.S 0177 Part III</td>
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tested by the C.S.I.R report # BF 502/003 5600566041996
PHYSICAL PROPERTIES

Density        +- 1,35g/p/m³
Flexibility    excellent
Viscosity      +70 000CPS Brookefield Viscometer 6/10
Solids         63%
Toxicity       water based (non-toxic)
Flash Point    n/a
Shelf Life     18 months when stored in original containers at room temperature
Spread Rate    4kg/m² to give (dft) of 1.6mm
DFT            recommended 1.6mm
Drying Time    touch dry 3 hours, full cure in 3 days
**Application of Micon Flamsayf 325 to Electrical Cables**

Micon Flamsayf 325 is a Non-Intumescent type product used for interior and exterior application and is ideal as a cable coating, to prevent the propagation of flame spread along the cables.

Micon Flamsayf 325 is flexible and adheres excellently to all electrical cable surfaces and does not give off harmful gasses when exposed to fire.

Micon Flamsayf 325 was developed to be used in areas where it is virtually impossible to apply a three-coat system for one reason or another.

**Application to Electrical Cables**

Micon Flamsayf 325 can be applied to a dry film thickness of 1.5mm - 2mm, in a one coat application provided care is taken during application.

As with Micon Intusayf the areas to be coated must be free from dust, oil, grease etc. Micon Flamsayf 325 is flexible when dry and therefore excellent for use on electrical cables.

Micon Flamsayf 325 is non-toxic and can be applied by brush, trowel, or hand.

Micon Flamsayf 325 is also used in the construction of Fire Penetration Seals for use in areas like substations to seal areas where cables pass through Fire Walls.

Micon Flamsayf 325 complies with the SABS 0177 Part 111 standards and has also been extensively tested by the CSIR.

**Action in fire**

Micon Flamsayf 325 forms a protective insulating char on exposure to fire with a zero spread of flame and acceptable low toxic gas emissions.

**COVERAGE FOR CABLE COATING**

MICON FLAMSAYF 325 (1 coat 1.6mm D.F.T.)       - + 4.00 kg per m²
The below is just a guideline of instruction, and should not be used as the only line of defense in event of an outbreak of fire.

**Cable Coatings**

All cable surfaces should be clean and free from dust, dirt, grime and grease prior to the application of Micon Flamsayf 325.

It is the responsibility of the contractor to ensure that proper surface preparation is conducted to ensure that the fire retardant will work as intended in event of fire.

All cables to be coated, irrespective of their size, shall be coated with a Micon Flamsayf 325 fire retardant mastic coating to a minimum W.F.T thickness of 3mm with a minimum D.F.T thickness of 1.6mm.

Any cables entering/leaving a wall or penetration should be coated both sides of the wall to a length of 1 meter on both sides with Micon Flamsayf 325.

Cable termination of transformers shall be coated from the termination point two meters from the termination with Micon Flamsayf 325.

Cables and terminations of MCC’s HV switchgear shall be coated from the termination point two meters from the termination with Micon Flamsayf 325.

Cables and terminations of HV motors, shall be coated from the termination point two meters from the termination with Micon Flamsayf 325.

Horizontal cables which run on exposed cable racks in areas considered as high risk should be coated in lengths of two meters every twenty meters.

Vertical cables which run on exposed cable racks in areas considered as high risk should be coated in lengths of two meters at vertical branch off and then at intervals of every five meters.

Cables of less than three meters shall be coated for the entire length.

Cables connected to a gulley box rig shall be coated from the termination point five meters from the termination.
**SPECIFICATIONS FOR THE INSTALLATION OF A MICON FLAMSAYF 325 MASTIC PENETRATION SEAL**

**Purpose**
To provide a one or two hour fire and/or smoke seal

**Area's of application**
60 minute rating (ref Figure 1)

Pre-coat a single layer of 50mm thick, 160kg/m³ density mineral wool board on one side with Micon Flamsayf 325 mastic to a dry film thickness of 1.6mm

The board is then cut oversized and pressure fitted into the opening with the pre-coated side to the inside.

The exposed surface coat with Micon Flamsayf 325 mastic to dry film thickness of 1.6mm

Micon Flamsayf mastic is then applied to the service penetrating the fire seal for a distance of 500mm from the seal unless it is a steel pipe duct in which case the overlap should be 40mm.

Micon Flamsayf 325 mastic is applied to overlap from the mineral wool board to the adjacent substrate for a distance of 25mm on both sides of the fire seal to provide an airtight seal.
120 minute rating (ref Figure 2 and 3)

The only difference between a 60 minute and a 120 minute fire penetration seal is that a double layer of 50 mm mineral wool board is installed in place of a single layer, otherwise installation procedures are the same as above.

**Reinforcing**

On larger openings a combination of angle iron and expanded metal may be used to provide stability to the mineral wool board.

![Diagram](image.png)

**Fire protective Coating for Cables and Fire Resistant Barriers for Cable Trenches and Wall Penetrations**

Cables connected to a mini substation must be protected with Micon Flamsayf 325 from the termination point to within a radius of approximately 5 meters from the centre of the mini-sub.

All cable joint shall be coated for approximately 1 meter on either side of the joint with Micon Flamsayf 325.
Fire Barriers for Wall Penetrations

Fire barriers for wall penetrations shall be installed for cable openings in all outside walls of all substations as well as selected penetrations into other areas.

Insulation board mineral wool 1m x 600mm x 50mm.

All wall penetrations in buildings shall be fully packed with mineral wool, and sealed with a fire protective coating. The nominal dry thickness shall be 3mm (minimum 2mm). The coating shall be extended through to cover all cables entering and/or leaving the wall penetration up to a minimum length of 1 meter on both sides of the wall.

Fire Barriers in Cable Trenches/ Ducts

Where cables are run in trenches/ducts longer than 15 meters, a 50mm thick mineral wool board must be installed every 10 meters and must be effectively sealed with additional mineral wool and fire protective coating to fill any voids. All cables shall be coated on both sides of the barrier up to a minimum length of 2 meters.

Fire barriers shall also be placed where cables branch off from a main trench/duct.