

protect your values



PYRO-SAFE FLAMMOPLAST KS 1

intumescent cable coating

Cables



Table of contents

Topic		Page
	Cable systems	
	Fire protection for cable systems	3-4
	Intumescent fireproof coating	5
	Product properties	6
	Certifications and tests	7
1.	Preliminary notes / overview	8
1.1	Target group	8
1.2	Using the manual	8
1.3	Safety information	8
1.4	Area of application	8
2.	Permissible uses	9
3.	Usable products	9
4.	Regulations for implementation and variations	10
5.	Application steps	11
5.1	Preparation	11
5.2	Handling	12
5.3	Application steps	13-14
5.4	Measuring the thickness of the coating	15

Cable systems

Fire protection for cable systems

Cable systems of various sizes and types are found in buildings today.

These systems are numerous in public buildings, industrial facilities and power stations etc., as are their uses.

Cable systems run over all floors and supply almost every room. They are usually located on cable support systems behind floors and wall coverings.

Their fundamental role is the distribution and interconnection of energy supplies along with data and communication technology.

Alongside the cables used purely for supplying energy, it is the wiring used for information and communication technology which has significantly increased in quantity.

Thanks to the cable structure, all kinds of different material compositions are found in these systems. Many insulations and cable sheaths are flammable.



Cable systems

Fire protection for cable systems

From a fire prevention perspective, unprotected cable systems are a potential hazard which should not be underestimated. In the event of a fire, electrical cables and cable trays can act like a fuse, allowing the fire to spread in an uncontrolled manner.

The combustible cable jacket may result in burning droplets and also a release of toxic fumes which can lead to life-threatening smoke inhalation.

These fumes can be highly corrosive and have a destructive impact on technical facilities and other materials.



In order to eliminate fire hazards, cable systems can be successfully protected with a fire retardant coating.

In many countries these kinds of measures are mandatory.

An effective and economic product for protecting cables against fire has been developed by svt in the form of its intumescent fire-proof coating PYRO-SAFE FLAMMOPLAST KS 1.



PYRO-SAFE FLAMMOPLAST KS 1

Intumescent fireproof coating

PYRO-SAFE FLAMMOPLAST KS 1 is a paint-on material for fireproof coatings in dry internal areas. These fire protection products cover a large application area, e.g. the fireproof coating for cables and cable systems. In the event of a fire, the product forms a heat-insulating foam which fills seams, cracks and other openings. This process does not involve any appreciable expansion pressure. This mechanism protects the subsurface from direct exposure to fire.



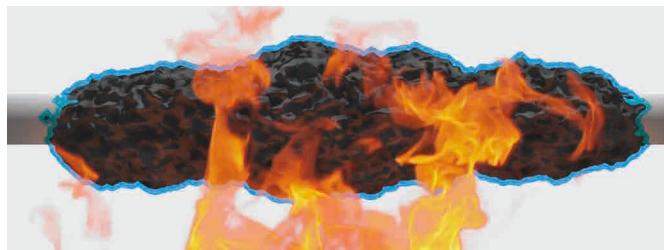
Benefits

- easy application using brush, roller or airless spray gun
- proven ageing resistance of min. 30 years in practice
- coating for all kinds cables without using a primer
- economic application
- various proofs for use in nuclear power plants
- an electrical derating is not required
- solvent free, contains no halogens
- does not contain asbestos, lead, mercury, hexavalent chromium or polybrominated biphenyl
- does not release toxic fumes
- no explosion protection required for the application

Fire protection

PYRO-SAFE FLAMMOPLAST KS 1 essentially consists of expandable substances and binding agents. The efficacy of the intumescent coating depends on the formation of a heat-insulating foam. In the event of a fire the intumescent coatings foam and form an insulating layer.

Traditional intumescent products involved a coating which would foam up voluminously on exposure to heat, expanding to as much as 100 times its original thickness without any appreciable expansion pressure and forming a light, fine-pored carbon foam, i.e. the insulating layer. Thanks to their highly insulating effect, these products are primarily used in structural steel engineering, in cable coatings for preventing the spread of fire or as surface sealants on so-called mineral fibreboard partitions.



PYRO-SAFE FLAMMOPLAST KS 1

Intumescent fireproof coating

Product properties

PYRO-SAFE FLAMMOPLAST KS 1	Coating
Colour	white / grey
Density (+20 °C)	1.20 g/cm ³ - 1.37 g/cm ³
Volatile components (VOC)	< 140 g/l
Viscosity (+20 °C) [mPas]	8,000 – 12,500
Handling (min. + 5 °C/ < 85 % relative humidity)	<ul style="list-style-type: none">• brush• roller• airless spray gun
Consumption Solid material (weight) Consumption example* wet film thickness** dry film thickness**	62 – 72 % 1,000 g/m ² approx. 800 µm approx. 500 µm
Drying time dust-dry reworkable thoroughly dry (at +23 °C / relative humidity 65 % ± 3 %)	min. 6 hours min. 8 hours min. 4 days
Product code	01151001


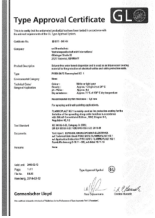




* Consumption depends on the approval requirements. ** Material losses must be taken into account during application.

PYRO-SAFE FLAMMOPLAST KS 1 is an intumescent coating which starts to foam up under exposure to heat from approximately 250 °C. The resulting protective coating envelops the cable and the cable tray protecting them against the effects of fire. PYRO-SAFE FLAMMOPLAST KS 1 was specifically developed as a cable protection for structural fire proofing indoors.

PYRO-SAFE FLAMMOPLAST KS 1

Intumescent fireproof coating

Certifications and tests

	<p>GL Certificate GL Certificate No. 89 811 94 HH</p> <p>Test Standards IEC 60332-3-22, Cat.A: 2009; DIN-EN 60332-3-22/ VDE 0482-332-3-22: 2010-08</p> <p>certified dry film thickness of 0.5 mm in accordance with IEC 60332-3</p>	
 <p>APPROVED Manufacturer/Hersteller: svt Brandschutz Vertriebsge- sellschaft mbH International Gluesinger Strasse 86 D-21217 Seevetal</p>	<p>FM Approvals - Certificate of Compliance Approval Identification: 2D5A7.AF</p> <p>certified dry film thickness of 1.6 mm in accordance with FM Approval Class 3971</p>	
 <p>svt Werk 01 Z-19.11-389</p> <p>Beauftragter: normal entflammbar DIN 4102-B2</p>	<p>General building control approval Z-19.11-389 (normal flammability) building material class DIN 4102-B2 as per DIN 4102-1</p> <p>certified dry film thickness of 0.8 mm in accordance with abZ [allgemeine bauaufsichtliche Zulassung: German building control approval] No. Z-19.11-389</p>	

Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

1. Preliminary notes / overview

1.1 Target group

- The installation manual is aimed exclusively at people with professional fire proofing training.

1.2 Using the manual

- Read this manual thoroughly first before beginning work. Pay particular attention to the following safety information:
- The authorisation holder assumes no liability for damages which arise through a failure to comply with this guide.
- Pictorial representations serve purely as examples. Installation results may differ visually.

1.3 Safety information



Personal protective equipment:



body protection
wear protective work clothing and non-slip shoes

1.4 Area of application

PYRO-SAFE FLAMMOPLAST KS 1 coating is designed for use on components requiring fireproofing in or on building products, structural elements, building types and structures which are subject to fire protection specifications. In the event of a fire, the coating prevents the heat from penetrating by foaming up on exposure to high temperatures.

PYRO-SAFE FLAMMOPLAST KS 1 must not be used in damp rooms or other similar areas with high humidity conditions.

PYRO-SAFE FLAMMOPLAST KS 1 must not be exposed to moisture or direct atmospheric influences.

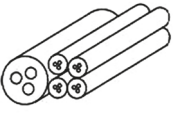
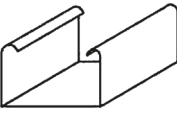
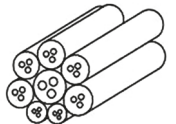
PYRO-SAFE FLAMMOPLAST KS 1 may only be painted with other colours which are approved by svf.

If special demands are imposed on the PYRO-SAFE FLAMMOPLAST KS 1 coating, for instance constant exposure to chemicals, then additional evidence is required.




Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

2. Permissible uses

	All types of electric cables and wiring (including fibre optic cables) with the exception of “wave guide” cables without any restriction on the size of the overall cross-section of the individual cable. Vertically, horizontally or diagonally arranged.		cable support structures non-flammable cable trays or cable ladders with building material class DIN 4102-A or classes A1 and A2-s1, d0 in accordance with DIN EN 13501-1 Vertically, horizontally or diagonally arranged.
	cable bundles without any restriction on the size of the overall cross-section of the individual cable. Vertically, horizontally or diagonally arranged.		

3. Usable products

	PYRO-SAFE FLAMMOPLAST KS 1 colour 12.5 kg pail - white Item No. 01151001		Recommended equipment: <ul style="list-style-type: none">• adhesive tape/ masking film• airless spray gun brush and/or roller• possibly mirror to check the coating• wet film gauge or equal• metal strip, plate or equal to measure the dry layer thickness• electronic dry film thickness gauge
	Description label Item No. 01229000		

Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

4. Regulations for implementation and variations

- The surface of the cables and cable support structures to be coated must be dust-free, grease-free and dry. There must be nothing which could impair good adhesion.
- If spraying using an airless spray gun or the high-pressure method, at least 2 applications are required.
- For cleaning use a neutral cleaner. (e.g. cleaner 22 diluted with water 1:5)
Do not use highly alkaline cleaning agents (pH > 8.5). Carefully remove any residual cleaner.
- There is no need for a primer coat on plastic cable sheaths. The customary existing anti-corrosion finish on metal cable structures is sufficient.
- If needed, floors, walls and particularly any electrical components are to be protected from the spray mist by covering or masking them.
- Before the coating is applied the information labels on cable routing (nodal points, redundancy and level details) must be protected. They must remain legible once the coating has been applied.
- Nominal application quantity / dry coating thickness on cables according to IEC 60 332-3-22 category A (corresponds to EN 50266-2-2 category A):
$$1,000 \text{ g/m}^2 \text{ (wet)} \triangleq \geq 500 \text{ } \mu\text{m} \text{ (dry)}$$
- Nominal application quantity / dry film thickness on cables according to FM testing procedures:
$$3,200 \text{ g/m}^2 \text{ (wet)} \triangleq \geq 1,600 \text{ } \mu\text{m} \text{ (dry)}$$
- Material losses must be calculated during application.
- A top coat is not required.
- PYRO-SAFE FLAMMOPLAST KS 1 must be adequately protected against mechanical damage.
Any possible coverings put in place for this purpose must not inhibit the foaming behaviour of the building material. This must be demonstrated in component testing.
- Where a coating has been partially damaged, the damaged coating surface can be given a reapplication of PYRO-SAFE FLAMMOPLAST KS 1.
IMPORTANT: The dry film thickness specified for the project must be built up again.

Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

5. Application steps

5.1 Preparation

The specified steps are generally to be carried out regardless of the subsequent treatment process.

1. Make sure the cable/cable support structures are free of any dust and dirt.



2. Thoroughly remove any grease from the cables/ cable support structures with a neutral cleanser. Do not use highly alkaline cleaning agents (pH > 8.5). Carefully remove any residual cleaner. There is no need for a primer coat on plastic cable sheaths.

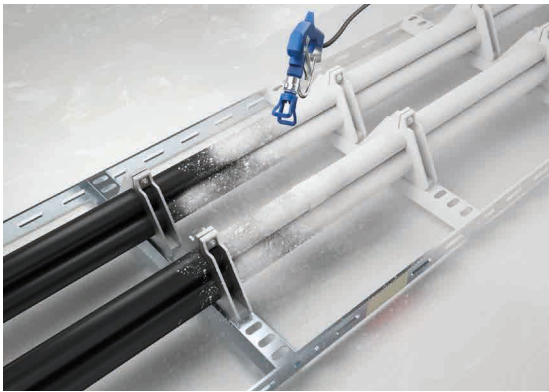


Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

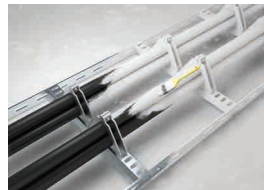
5.2 Handling

1. Coating with PYRO-SAFE FLAMMOPLAST KS 1 can be done using airless spray painting (nozzle bore > 0.019 inch = 0.48 mm).

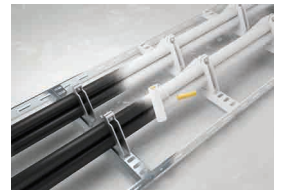


Alternatively the cables can be coated manually using a brush and/or roller.

1.a brush



1.b roller

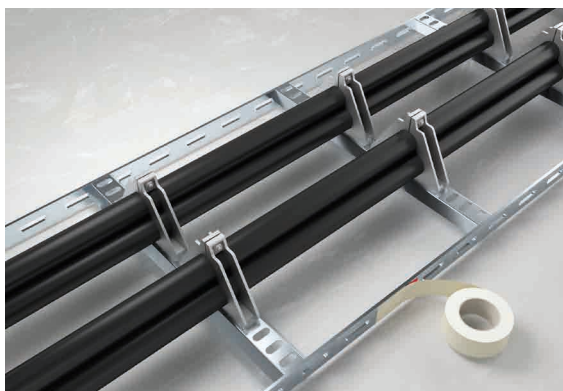


Cable fire protection

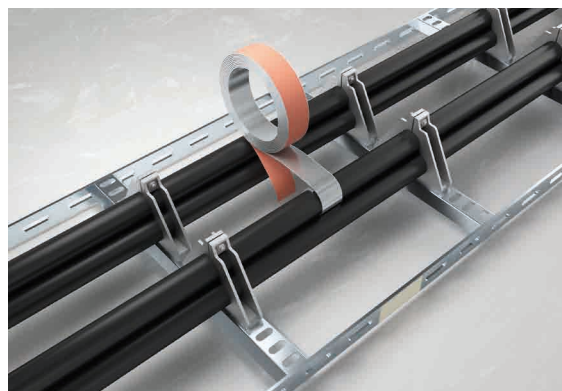
with PYRO-SAFE FLAMMOPLAST KS 1

5.3 Application steps

1. Cover floors, walls and electrical components with sheeting or mask them with tape to protect them from the spray mist. Information labels on the cable routing must still be legible after coating.



2. Preparation to measure the coating thickness with a suitable method. e.g. a metal strip can be wrapped around the cable or metal plates can be placed.



3. Using a stirrer attached to a drill machine stir the coating material thoroughly for at least 5 minutes until it reaches the required handling consistency.



- 3.a After stirring, if the application consistency is still too thick, 1-2 % water can be added to thin it down slightly.



Note:
The coating material needs to be stirred up again every day.

Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

5.3 Application steps

4. Coat all exposed surfaces evenly with PYRO-SAFE FLAMMOPLAST KS 1; depending on the project specifications either by painting with a brush or spraying. Please follow the operating instructions for the machine!



5. Carefully spray cable spandrels and gaps. Hard to reach surfaces on the cables and cable trays can be coated using the airless spray gun accessories, e.g. the extension tube and the linking nozzles.



Note:

PYRO-SAFE FLAMMOPLAST KS 1 must be handled at over +5 °C and less than 85 % relative humidity.

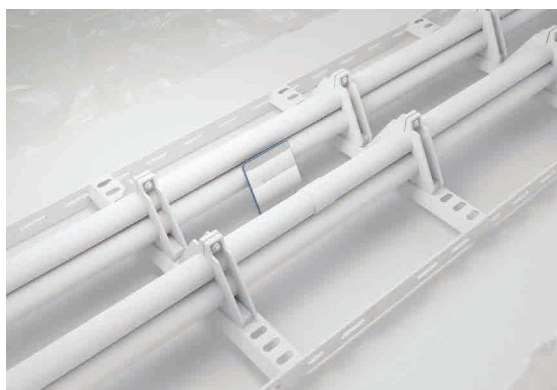
With a wet film gauge or equal, the coating thickness in wet condition can be measured to predict the thickness of the dry coating.

Cable fire protection

with PYRO-SAFE FLAMMOPLAST KS 1

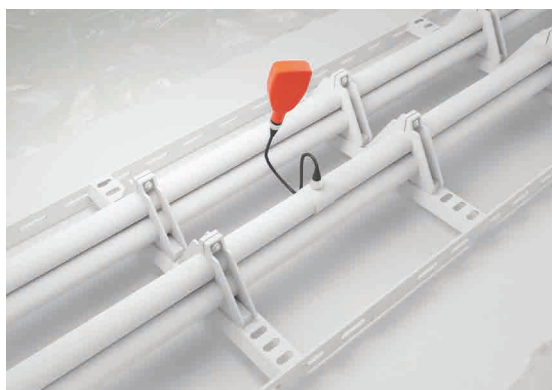
5.4 Measuring the thickness of the coating

1. Check that surfaces have been completely coated. Technical equipment can be used if necessary.



Note:
Hidden areas can be checked with a mirror.

2. Once the coating has completely dried out, use a dry film thickness measuring device to determine the thickness of the dry film e.g. on the metal strip or metal plates.
Recommended: Use an electronic measuring device.



Note:
Keep a record of the results calculated. The measurement log is a prerequisite for proper acceptance!

3. Once the coating has completely dried out and the thickness of the dry film has been established, remove any tape and/or masking.

