



*Protect your values.*



## **PYRO-SAFE<sup>®</sup> FLAMMOTECT-A**

Ablative cable coating



# Contents

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Fire Protection on Cable Systems .....	4
Functional Principle PYRO-SAFE® FLAMMOTECT-A .....	5
Product Data .....	6
Chemical Resistance .....	8
Applications .....	10
Design Regulations and Notes .....	11
Processing Steps .....	12
Measurement of the Film Thickness .....	14



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# Fire Protection on Cable Systems

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Cable systems of the most diverse orientations and dimensions can be found in every building today. These systems are numerous in public buildings, industrial plants, power stations etc., depending on their use. Cable systems run across all floors and usually supply every room. They often lie open behind floor and wall panelling on cable support systems.

They are essentially used for the distribution and networking of energy supply as well as data and communication technology. In addition to cables for pure power supply, it is precisely the cables for information and communication technology that have greatly increased in number. A multitude of different material compositions come together here due to the cable structure. Many insulations and cable sheaths are combustible.

From a fire protection point of view, unprotected cable systems are a source of danger that should not be underestimated. In case of fire, electrical cables and cable support structures can spread the fire like wildfire and lead to uncontrolled spreading.

The burning of plastic cable insulation causes burning dripping and also the release of toxic fire gases that can lead to life-threatening smoke poisoning. These fumes can be highly corrosive and destructive to technical systems and other materials.

In order to exclude fire hazards, cable systems can be effectively reinforced with a fire protection coating. In many countries, such measures are mandatory.





## Functional Principle of the PYRO-SAFE® FLAMMOTECT-A Ablation

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PYRO-SAFE® FLAMMOTECT-A is an ablative fire protection coating. In case of fire, the product releases crystal-bound water. PYRO-SAFE® FLAMMOTECT-A absorbs heat above it caused by the fire and thus reduces the ambient temperature (endothermic reaction). In addition, a protective layer is created which insulates the surface and reduces the intensity of the fire impact on the coated material.

PYRO-SAFE® FLAMMOTECT-A is solvent-free and contains no halogens. It is free of asbestos, lead, mercury, hexavalent chromium and polybrominated biphenyl ether and does not release toxic fumes. In addition, the product is resistant to external influences such as moisture, freeze-thaw cycles, UV radiation, oil, petrol and chemicals.

PYRO-SAFE® FLAMMOTECT-A, the fire protection coating specially developed by svt for this application, thus offers effective, economical cable fire protection.

# PYRO-SAFE® FLAMMOTECT-A

PYRO-SAFE® FLAMMOTECT-A covers a wide field of applications, e. g. as a fire protection coating for cables and cable systems, and impresses with its simple application, excellent drying properties and a balanced price-performance ratio.

## Product Data



### Product Features

Colour	white	
Density (+20 °C)	1.34 – 1.48 g/cm <sup>3</sup>	
Volatile components (VOC)	< 50 g/l (GS-11, Green Seal Standard)	
Usage category	Type X acc. to EOTA TR024	
	Coating	Solid emulsion
Viscosity (+20 °C) [mPas]	6,000 - 10,000	25,000 - 40,000
Application (min. + 5 °C/< 85 % relative humidity)	<ul style="list-style-type: none"> <li>• Brush</li> <li>• Roller</li> <li>• Airless sprayer (nozzle hole &gt; 0.019 inch = 0.48 mm)</li> </ul>	<ul style="list-style-type: none"> <li>• Brush</li> <li>• Filler</li> <li>• Airless sprayer (nozzle hole &gt; 0.019 inch = 0.48 mm)</li> </ul>
Field of application	for thin layer application quantities	for thick layer application quantities

### Consumption (as an example)

Solid (weight)	66 - 86 %			
Application quantity	1,000 g/m <sup>2</sup>	2,000 g/m <sup>2</sup>	3,200 g/m <sup>2</sup>	4,000 g/m <sup>2</sup>
Wet film thickness*	approx. 900 µm	approx. 1,800 µm	approx. 2,900 µm	approx. 3,600 µm
Dry film thickness*	approx. 500 µm	approx. 1,000 µm	approx. 1,600 µm	approx. 2,000 µm

\* Material losses must be taken into account during application.

### Drying Time (at +23 °C/relative humidity 65 % ± 3 %)

Dust-dry	min. 4 hours
can be coated over	min. 8 hours
dry through	min. 4 days

### Delivery and Packaging

	Coating	Solid emulsion
Art. no.	for 12.5 kg 01155101 for 15 kg 01155105	for 12.5 kg 01155106 for 15 kg 01155107

# Your Benefits

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## Easy to Use for a Wide Range of Applications

- ✓ Product available in different viscosities
- ✓ For indoor and outdoor use
- ✓ Electrical derating is not required
- ✓ Various verifications for use in nuclear systems
- ✓ No explosion protection required for the application
- ✓ Has no effect on other building materials such as polyethylene (PE) and polyvinyl chloride (PVC)

## High Product Resistance

- ✓ Resistant to moisture, freeze-thaw cycles, UV radiation as well as various oils and chemicals
- ✓ Salt water tested
- ✓ No material spalling under mechanical stress
- ✓ Tensile strength (DIN 53455) and evaluation on the basis of a test piece

## High Quality Fire Protection Product – Made in Germany

- ✓ Solvent-free, contains no halogens
- ✓ Free of asbestos, lead, mercury, hexavalent chromium and polybrominated biphenyl ether
- ✓ Does not release toxic fumes
- ✓ Non-hazardous material according to the German Ordinance on Hazardous Substances (GefStoffV)



# Chemical Resistance according to DIN EN ISO 2812-1

The resistance to chemicals of PYRO-SAFE® FLAMMOTECT-A was determined according to DIN EN ISO 2812-1 (Paints and varnishes - determination of resistance to liquids - Part 1: Immersion method). PYRO-SAFE® FLAMMOTECT-A is known as a very resistant fire protection coating and has already been used many times on cable systems as a protective layer against weathering.

The test series covers the most common chemicals that may be present in sensitive or hazardous areas. The test framework ranges from short-term exposures, such as those resulting from accidental contact (usually no longer than 30 minutes), to permanent exposures (measured with an exposure time of 28 days).

The coated cable samples were directly exposed to the respective chemical for 80 % of the sample length. After exposure, the samples were cleaned with distilled water, dried for 24 hours and assessed for coating integrity.

## Evaluation Criteria

There is complete permanence, no changes occur	+++
Consistency is achieved, slight changes can be recognised	++
Resistance is still achieved, visual and minor mechanical changes occur	+
Resistance is no longer achieved, the mechanical changes lead to a restriction of the function	-
Resistance is no longer achieved, the chemicals partially destroy the coating	--





Chemical	Concentration	Short-term exposure	Sustained exposure
Boric acid	5%	+++	+++
Acetic acid	undiluted	--	--
Acetic acid	10%	+++	-
Nitric acid	undiluted	+++	--
Nitric acid	10%	+++	--
Nitric acid	1%	+++	+++
Hydrochloric acid	undiluted	+++	--
Hydrochloric acid	10%	+++	++
Hydrochloric acid	1%	+++	+++
Sulphuric acid	undiluted	+++	--
Sulphuric acid	10%	+++	+++
Sulphuric acid	1%	+++	+++
Phosphoric acid	undiluted	+	--
Phosphoric acid	10%	++	--
Phosphoric acid	1%	+++	--
Potassium chloride	10%	+++	+++
Potash lye	50%	++	--
Potash lye	10%	+++	--
Potash lye	1%	+++	+++
Caustic soda	50%	+++	-
Caustic soda	10%	+++	-
Caustic soda	1%	+++	+
Sodium chloride	10%	+++	+++
Ammonia	undiluted	+++	--
Ammonia	3.5%	+++	--
Hydrogen peroxide	undiluted	--	--
Hydrogen peroxide	3%	+++	--
Seawater	3%	+++	+++
Soda	10%	+++	+++
Tap water	undiluted	+++	+++
Urea	undiluted	+++	+++
Formaldehyde	30%	+++	+++
Formaldehyde	3%	+++	+++
Hydrogen fluoride	undiluted	--	--
Butyl acetate (ester)	undiluted	++	--
Acetone	undiluted	+++	+
Isopropyl alcohol	undiluted	+	--
Methanol	undiluted	++	--
Ethanol	undiluted	++	+
Ethanol	20%	+++	+
Butanol	undiluted	++	--
White spirit, aromatics-free	undiluted	+++	++
White spirit	undiluted	+++	++
Glycerine	undiluted	+++	++
Heating oil/diesel	undiluted	+++	++

# Application

## Approvals and Tests

### FM Approval Class 3971

FM Approvals – Certificate of Compliance

Approval Identification: 3037058

Certified dry film thickness of 1.6 mm



### IEC 60332-3-22

### DIN EN 60332-3-22/VDE 0482-332-3-22

Testing of flame spread: Cat. A: 2018 for 60 min.

DNV GL Certificate No. TAE00003BN

Dry film thickness  $\geq 0.5$  mm

DNV·GL




### IEC 60331-21

### DIN IEC 60331-21 / VDE 0482-331-21:2017-06

Testing of the functional integrity: Successfully completed various tests for different cable types and voltage ranges.

Further information on request.

## Fields of Application

Media lines	Application	
	<b>Electrical cables and conductors of all types</b>	Without limiting the size of the total conductor cross-section of the single cables. Vertical, horizontal or diagonally laid or arranged.
	<b>Cable bundles</b>	
	<b>Cable support structures</b>	Non-combustible cable trays or cable ladders with construction material class DIN 4102-A or classes A1 and A2-s1, d0 according to DIN EN 13501-1 Installed or arranged vertically, horizontally or at an angle.



# Design Regulations and Notes

## Design regulations:

- ✓ Cables of all types may be laid or arranged vertically, horizontally or at an angle. The total conductor cross-section is not limited. Cable support structures must be classified according to DIN 4102-A or EN 13501-1 class A1 or A2-s1,d0.
- ✓ To ensure that adhesion is not impaired, the surfaces of the cables and cable support structures to be coated must be dry and free of dust and grease. If this is not the case, the surfaces must be cleaned. Do not use strongly alkaline cleaning agents (pH > 8.5).
- ✓ A primer or top coat is not required.
- ✓ Floors, walls, electrical system components as well as labels of the cable routing (e. g. mains node, redundancy, level information) must be protected from spray mist by covering or taping.
- ✓ PYRO-SAFE® FLAMMOTECT-A must be applied at min. +5 °C and under relative humidity of 85 %.
- ✓ Stir PYRO-SAFE® FLAMMOTECT-A thoroughly before application, water may be added to the product to adjust viscosity.
- ✓ If the coating is partially damaged, PYRO-SAFE® FLAMMOTECT-A can be reapplied to the damaged area. Important: The project-related dry film thicknesses must be rebuilt.
- ✓ The PYRO-SAFE® FLAMMOTECT-A cable coating must be used in compliance with the respective building regulations.

## Notes:

The installation instructions are intended exclusively for persons trained in fire protection. Read through these installation instructions in full before starting work. Pay particular attention to the following safety instructions. The approval holder accepts no liability for damage caused by non-observance of these instructions. Pictorial representations serve only as examples. Assembly results may differ visually.



### Safety Notice

Personal protective equipment:



Body protection

Wear protective work clothing and non-slip shoes

# Processing Steps

The specified work is to be carried out in general, regardless of the subsequent application.

## Preparation



1. Clean dust and dirt from cables/cable support structures.

2. Thoroughly degrease cable/cable support structures with a neutral cleaner.

## Application Information

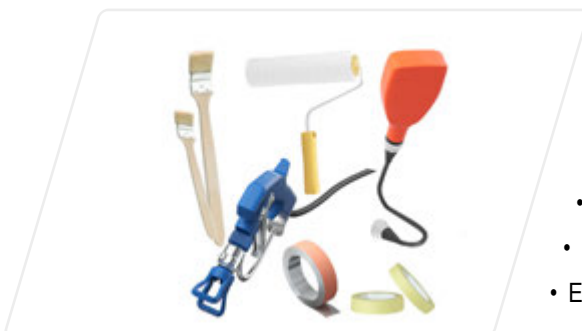


1.a Brush

1.b Roller

1. Coating with PYRO-SAFE® FLAMMOTECT-A can be carried out by means of airless painting (nozzle hole > 0.019 inch = 0.48 mm), taking into account the operating instructions of the airless unit.

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



### Recommended tools

- Adhesive tape/covering foil
- Airless device, brush and/or roller
- Possibly a mirror as an aid to inspection
- Wet comb or similar for measuring the wet film thickness
- Metal strap, plate or similar for measuring the dry film thickness
- Electronic dry film thickness gauge

## Processing Steps



1. Cover or tape off floors, walls and electrical system components. Labels of the cable routing must still be legible after coating.



2. Make preparations to measure the film thickness with a suitable method. E. g. wrap metal strap around the cable or arrange metal plates on which the dry film thickness can be measured later.



3. Stir coating material thoroughly before application, water may be added to the product to adjust viscosity.

**Note: Stir again daily.**



4. Coat all exposed surfaces evenly with PYRO-SAFE® FLAMMOTECT-A; by brushing or spraying, depending on the project specifications.



5. Carefully spray out cable gussets and gaps. Hard-to-reach areas can be coated with accessories of the airless spraying devices, e. g. extension tube and the articulated nozzles.

### Note:

With appropriate equipment (wet comb or similar), the film thickness can be measured in the wet state in order to predict whether the required dry film thickness will be achieved.



# Measurement of the Film Thickness

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1. Check surfaces for full coating.  
A mirror can be used to examine areas that are difficult to see.



2. After the coating has dried completely, determine the dry film thickness with a measuring device.  
More information on the following page.



3. After complete drying and determination of the dry film thickness, remove adhesive tape and/or covers.



# Measurement Report

The creation of a measurement report is indispensable for successful acceptance. As described above, the values are measured at previously defined points after the coating has dried completely. The results are recorded in the measurement log.

Protect your values.



## Measurement Report

Construction Site / Building: \_\_\_\_\_

Processor: \_\_\_\_\_

Used Coating Product: \_\_\_\_\_

Date: \_\_\_\_\_ Measured by: \_\_\_\_\_

Measuring Device: \_\_\_\_\_ Approved by: \_\_\_\_\_

		Element 1		Element 2		Element 3	
Target value dry film thickness (µm)							
Measuring points		Measured DFT (µm)	Target value reached?	Measured DFT (µm)	Target value reached?	Measured DFT (µm)	Target value reached?
	1						
	2						
	3						
	4						
	5						

		Element 4		Element 5		Element 6	
Target value dry film thickness (µm)							
Measuring points		Measured DFT (µm)	Target value reached?	Measured DFT (µm)	Target value reached?	Measured DFT (µm)	Target value reached?
	1						
	2						
	3						
	4						
	5						



Place/Date \_\_\_\_\_

Signature \_\_\_\_\_

You can find the measurement report as a template at [www.svt-global.com/measurement-report](http://www.svt-global.com/measurement-report)





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