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svt
FIRE PROTECTION



PYRO-SAFE DG-S PYRO-SAFE DG-SKN

High-performance intumescent coatings for rolling stock

High-performance intumescent coatings PYRO-SAFE DG-S and PYRO-SAFE DG-SKN

PYRO-SAFE DG-S and PYRO-SAFE DG-SKN are svt's innovative intumescent firestop coatings that are based on expandable graphite. They are used as fire-resistant coatings to improve the material performance in a fire and provide increased resistance to fire. Their specific material formulation has been optimised for use in rail vehicles.

Characteristics

Environmentally friendly expandable graphite is used as a basis for the insulation coating. This material can expand to many times its original size when exposed to heat. At temperatures of 150 °C and over, PYRO-SAFE DG-S and PYRO-SAFE DG-SKN form a protective insulation coating with a high foaming pressure of up to 1.65 N/mm² and an up to 50-fold expansion rate. Special substances stabilise and glue the high temperature stable graphite inclusions together. A number of reaction steps proceed during the different stages in a developing fire, so a coherent insulation coating is produced, which provides for effective fire protection.

Product features

PYRO-SAFE DG-S and PYRO-SAFE DG-SKN are VOC-free, single-component aqueous dispersions. They are moisture and UV resistant, and resistant against most chemicals. They possess excellent adhesion properties for application on timber, metal, plastic and fabric-based materials. Customised viscosity properties can be supplied.

The coating is viscoplastic after drying and offers very high resistance to mechanical impact. PYRO-SAFE DG-S and PYRO-SAFE DG-SKN are available in anthracite (standard), grey, black or red.

Application

Owing to their excellent properties, PYRO-SAFE DG-S and PYRO-SAFE DG-SKN can be used in a wide range of indoor and outdoor applications on different material surfaces.

Handling

PYRO-SAFE DG-S and PYRO-SAFE DG-SKN will be applied preferably by spray gun.

CURRENTA GmbH & Co. OHG
ANT Brandschutz
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51338 Leverkusen

Klassifizierungsbericht <small>Classification report</small>	12/1156	erstellt / created 2012-08-02
Prüfung <small>Test specimen</small>	CEN/TS 45545-2:2009 Bahnanwendungen - Brandschutz in Schienenfahrzeugen Teil 2: Anforderungen an das Brandverhalten von Materialien und Komponenten	CEN/TS 45545-2:2009 Railway applications - Fire protection of railway vehicles Part 2: Requirements for fire behaviour of materials and components
	T02 ISO 9659-2 T03.01 ISO 9660-1: 50 kWh/m ² T10.01/10.02 EN ISO 9659-2: 50 kWh/m ² T11.01 EN ISO 9659-2: 50 kWh/m ²	
Klassifizierung <small>Classification: general</small>	CEN/TS 45545-2:2009 Bahnanwendungen - Brandschutz in Schienenfahrzeugen Teil 2: Anforderungen an das Brandverhalten von Materialien und Komponenten	CEN/TS 45545-2:2009 Railway applications - Fire protection of railway vehicles Part 2: Requirements for fire behaviour of materials and components
Auftraggeber <small>Client</small>	SVT Brandschutz Vertriebsgesellschaft mbH International Herr / M. Reher Glasinger Str. 96 D-21217 Seevetal, Germany	
Material / Material	PYRO-SAFE DG-S	
Dicke / Thickness	2,5 mm	

Prüfergebnis / Test results

Das Material erfüllt die Grenzwerte des Anforderungssatzes R1 für die Gefährdungsstufen HL1 - HL3!
The material fulfilled the limits of the requirement set R1 for the hazard level HL1 - HL3!

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Klassifizierungsbericht <small>Classification report</small>	12/1155	erstellt / created 2012-08-02
Prüfung <small>Test specimen</small>	CEN/TS 45545-2:2009 Bahnanwendungen - Brandschutz in Schienenfahrzeugen Teil 2: Anforderungen an das Brandverhalten von Materialien und Komponenten	CEN/TS 45545-2:2009 Railway applications - Fire protection of railway vehicles Part 2: Requirements for fire behaviour of materials and components
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Auftraggeber <small>Client</small>	SVT Brandschutz Vertriebsgesellschaft mbH International Herr / M. Reher Glasinger Str. 96 D-21217 Seevetal, Germany	
Material / Material	PYRO-SAFE DG-SKN	
Dicke / Thickness	2,5 mm	

Prüfergebnis / Test results

Das Material erfüllt die Grenzwerte des Anforderungssatzes R1 für die Gefährdungsstufen HL1 - HL3!
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Testing

The material properties of PYRO-SAFE DG-S and PYRO SAFE DG-SKN have been tested by the accredited CURRENTA Brandtechnologie testing laboratory in Leverkusen/Germany according to CEN/TS 45545-2:2009. Both formulation options remain clearly below the limits of the R1 requirements for hazard levels HL1 – HL3.

PYRO-SAFE DG-SKN has been successfully tested by EXOVA Warringtonfire. The results demonstrate that PYRO-SAFE DG-SKN complies with the exterior vertical surface requirements (detailed in table 5 of BS 6853:1999) and the exterior horizontal prone surface requirements (detailed in table 6 of BS 6853:1999) for a Category Ia, Category Ib and Category II Vehicle.

PYRO-SAFE DG-S and PYRO-SAFE DG-SKN at a glance:

- VOC free, aqueous dispersion
- Viscoplastic
- High resistance to mechanical impact
- Customised viscosity adjustment possible
- Suited for indoor and outdoor applications
- Moisture and UV resistant
- Weather resistant
- Can be used on many different material surfaces (metal, timber, plastic, fabric)
- Resistant against many chemicals
- Early and very rapid foaming at 150 °C
- High foaming pressure (up to 1.65 N/mm²)
- Up to approx. 50-fold expansion rate
- CEN/TS 45545-2:2009 and BS 6853:1999 tested material properties

References

PYRO-SAFE DG-S is successfully used for different purposes by Siemens in the German high-speed ICE 3 train, the Desiro RUS train, and in the ULF tramway in Vienna.

PYRO-SAFE DG-SKN has been tested for outdoor application, for instance with the Siemens AGT VAL 208 train, the Desiro City Thameslink and by Bombardier for the Singapore Downtown Line .

Efficient fire protection solutions

We put our 40 years' experience as a supplier and licence owner in the field of passive fire protection at your service! We offer extensive technical assistance, in addition to innovative developments and special solutions.

Our vast know-how, broad product portfolio, and our own fire test facility that allows us to perform fundamental pre-approval tests form the basis on which we can offer cost-effective solutions to your specific fire protection requirements.

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BS 6853: 1999



Summary Test Report
 Table 5 (exterior vertical surfaces)
 Table 6 (exterior horizontal prone surfaces)

A Report To: srl Brandschutz-Vertriebsgesellschaft mbH International
 Document Reference: 327376, 327377 & 327378

Date: 2nd May 2013
 Issue No.: 1
 Page 1



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Executive Summary

Objective To assess the results of tests to BS 476: Part 7: 1997, BS 6853: 1999: Annex B.2 and BS 6853: 1999: Annex D.8.4, obtained on specimens of a product and to provide an opinion of compliance with the requirements for an Exterior Vertical Surface and Exterior Horizontal Prone Surface, as defined in BS 6853: 1999.

Generic Description	Product reference	Thickness	Weight per unit area or density
Flame retardant grade coated aluminium substrate	Not stated	3mm	Between 4300 and 6900 g/m ²
Individual components used to manufacture composite:			
Coating product (test face)	"Fire Protection Paint"	Between 730 and 770µm	Between 1000 and 1250kg/m ³
Coating product 2	"Anticoagulative Coating"	Between 160 and 180µm	1400kg/m ³
Coating product 3	"Primer"	Between 60 and 70µm	1400kg/m ³
Substrate	"Aluminium sheet"	3mm	Between 5100 and 5300kg/m ³

Please see page 5 of this test report for the full description of the product tested

Test Sponsor srl Brandschutz-Vertriebsgesellschaft mbH International, Gläuzger Str. 86, 21217 Seevetal, Germany

Opinion We consider the results of the tests as detailed in test report numbers 327376, 327377 and 327378, demonstrate that the product, as tested, complies with the exterior vertical surfaces requirements (detailed in Table 5 of BS 6853:1999) and the exterior horizontal prone surfaces requirements (detailed in Table 6 of BS 6853: 1999) for a Category Ia, Category Ib and Category II Vehicle.

Signatories



Responsible Officer
 J. Lucas-Cox *
 Technical Officer
 * For and on behalf of Exova Warringtonfire.



Authorised
 M. Dale *
 Deputy Operations Manager

Report issued: 2nd May 2013

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Subject to errors and changes. At time of printing (01/2014) all details correspond to current state of technology or standard. If not otherwise stated data is based on German standard.
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