



Reaction to fire classification report of flame retardant shrink-wrap

Alfa Solution AS

SP Fire Research AS



Reaction to fire classification report of flame retardant shrink-wrap



VERSION
1

DATE
2017-02-07

KEYWORDS:
NS-EN 13501-1:2007+A1:2009

AUTHOR
Robert Olofsson

CLIENT
Alfa Solution AS
Østerskogen 60
4879 Grimstad
Norway

CLIENT'S REF.
Rune Johansen

PROJECT NO.
130003-12

NUMBER OF PAGES:
7

ABSTRACT

This classification report defines the classification assigned to "*Flame retardant shrink-wrap*" (DS-269062 FR and DS-401260 FR) in accordance with the procedures given in NS-EN 13501-1:2007+A1:2009.

The description of the product and the test results are shown in the following pages.

The product *Flame retardant shrink-wrap* in relation to its performance in procedures given for NS-EN ISO 11925-2:2010 and EN 13823:2010 is classified **B – s1, d0**.

PREPARED BY
Robert Olofsson, Engineer

SIGNATURE

CHECKED BY
Anne Steen-Hansen, Research Manager

SIGNATURE

REPORT NO.
F17 130003-12:02

CLASSIFICATION
Restricted

CLASSIFICATION THIS PAGE
Restricted

The report is the client's property and cannot be given to a third party without the client's written consent. The report shall not be reproduced except in full without the written approval of SP Fire Research AS.

Document history

VERSION	DATE	VERSION DESCRIPTION
1	2017-02-07	Original version

Contents

1	Details of classified product	4
1.1	General	4
1.2	Product description	4
2	Reports and results in support of this classification	4
2.1	Test reports	4
2.2	Test results	5
3	Classification and field of application	7
3.1	Reference of classification	7
3.2	Classification	7
3.3	Field of application	7
4	Limitations	7

1 Details of classified product

1.1 General

The products “DS-269062 FR” and “DS-401260 FR” (as described by the sponsor), are defined as a flame retardant shrink-wrap.

1.2 Product description

Flame retardant shrink-wrap is described below and also described in the test reports provided in support of classification listed in section 2.1.

The products “DS-269062 FR” and “DS-401260 FR” are the same type of polyethylene flame retardant shrink-wrap but with different nominal thicknesses of 9 mils (0.2286 mm) and 12 mils (0.3048 mm) respectively.

According to the product specification sheet the flame retardant shrink-wrap is formulated from polyethylene, UV inhibitors, and other additives which are designed to resist degradation due to sunlight, rain, chemicals and heat. It is suited for heavy duty applications where two directional shrink properties are required.

The shrink-wrap is mainly used for covering scaffolding during construction work.

2 Reports and results in support of this classification

2.1 Test reports

Table 1 Test reports in support of the classification of Flame retardant shrink-wrap.

Name of laboratory	Name of sponsor	Report ref. no. and date	Test method and test date
SP Fire Research AS	Alfa Solution AS	F17 130003-12:01 2017-01-17	NS-EN ISO 11925-2:2010 2016-12-19
SP Technical Research Institute of Sweden	Alfa Solution AS	6P10454 2017-01-19	EN 13823:2010+A1:2014 2017-01-11

2.2 Test results

Table 2 Test results in support of the classification of Flame retardant shrink-wrap DS-269062 FR (9 mils). The test results listed below is found in test reports 6P10454 and F17 130003-12.01 (see table 1).

Test method	Parameter (B-s1, d0)	No. tests ^a	Results	
			Continuous parameter – mean (m)	Compliance with parameters
EN 13823:2010+A1:2014	FIGRA _{0,2MJ} ≤ 120 W/s	1	0	Compliant
	LFS < edge		(-)	Compliant
	THR _{600s} ≤ 7.5 MJ		0.2	Compliant
	SMOGR _A ≤ 30 m ² /s ²		0	Compliant
	TSP _{600s} ≤ 50 m ²		19	Compliant
	No flaming droplets/particles within 600 s		(-)	Compliant
NS-EN ISO 11925-2 Surface flame attack, 30 s exposure	F _s ≤ 150 mm	6	(-)	Compliant
	No ignition of the filter paper		(-)	Compliant
NS-EN ISO 11925-2 Edge flame attack, 30 s exposure	F _s ≤ 150 mm	6	(-)	Compliant
	No ignition of the filter paper		(-)	Compliant

^a Not for extended application.

(-) Not applicable.

Table 3 Test results in support of the classification of Flame retardant shrink-wraps DS-401260 FR (12 mils). The test results listed below is found in test reports 6P10454 and F17 130003-12.01 (see table 1).

Test method	Parameter (B-s1, d0)	No. tests ^a	Results	
			Continuous parameter – mean (m)	Compliance with parameters
EN 13823:2010+A1:2014	FIGRA _{0,2MJ} ≤ 120 W/s	3	0	Compliant
	LFS < edge		(-)	Compliant
	THR _{600s} ≤ 7.5 MJ		0.1	Compliant
	SMOGR _A ≤ 30 m ² /s ²		0.9	Compliant
	TSP _{600s} ≤ 50 m ²		24	Compliant
	No flaming droplets/particles within 600 s		(-)	Compliant
NS-EN ISO 11925-2 Surface flame attack, 30 s exposure	F _s ≤ 150 mm	6	(-)	Compliant
	No ignition of the filter paper		(-)	Compliant
NS-EN ISO 11925-2 Edge flame attack, 30 s exposure	F _s ≤ 150 mm	6	(-)	Compliant
	No ignition of the filter paper		(-)	Compliant

^a Not for extended application.

(-) Not applicable.

3 Classification and field of application

3.1 Reference of classification

This classification has been carried out in accordance with NS-EN 13501-1:2007+A1:2009.

3.2 Classification

The product, *Flame retardant shrink-wrap* in relation to its performance in test program for NS-EN ISO 11925-2:2010 and NS-EN 13823:2010+A1:2014 is classified:

B

The additional classification in relation to smoke production is:

s1

The additional classification in relation to flaming droplets/particles is:

d0

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
B	-	s	1	,	d	0

i.e. **B – s1,d0**

Reaction to fire classification: B–s1,d0

3.3 Field of application

This classification is valid for the following product parameters:

- Nominal thickness:
 - 9 mils (0.2286 mm) – 12 mils (0.3048 mm)
- Nominal density:
 - 240 – 310 g/m²
- Colour:
 - white

This classification is valid for the following end use applications:

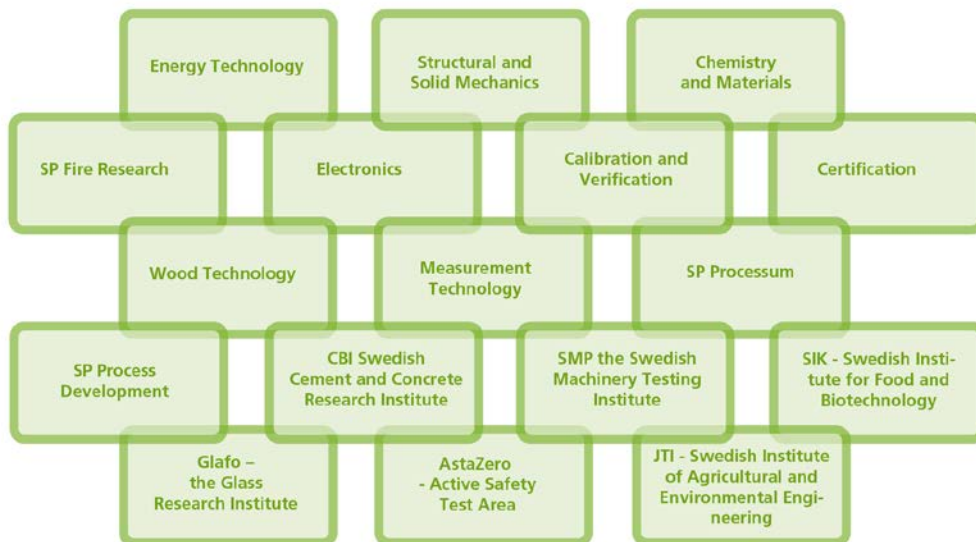
- Substrates:
 - Free standing
- Mounting:
 - Mechanically fixed to steel
- Joints:
 - No joints

4 Limitations

This document does not represent type approval or certification of the product.

SP Technical Research Institute of Sweden

Our work is concentrated on innovation and the development of value-adding technology. Using Sweden's most extensive and advanced resources for technical evaluation, measurement technology, research and development, we make an important contribution to the competitiveness and sustainable development of industry. Research is carried out in close conjunction with universities and institutes of technology, to the benefit of a customer base of about 10000 organisations, ranging from start-up companies developing new technologies or new ideas to international groups.



SP Fire Research AS

Box 4767 Sluppen, N-7465 Trondheim, NORWAY

Telephone: +47 464 18 000

E-mail: post@spfr.no, Internet: www.spfr.no

www.spfr.no

More information about publications published by SP: www.sp.se/publ

SPFR Report F17 130003-12:02