

## CLASSIFICATION OF REACTION TO FIRE BASED ON DIN EN 13501-1:2010-01

- Translation -

**No. of Classification Report:**

K-2300/949/16-MPA BS

**Client:**

*YSHIELD GmbH & Co. KG  
Am Schulplatz 2  
94099 Ruhstorf*

**Issued by:**

*Materialprüfanstalt für das Bauwesen  
Beethovenstraße 52  
38106 Braunschweig*

**Notified body No.:**

0761-CPD

**Product:**

Shielding paint  
Product designation: „YSHIELD sheilding paint HSF54“

**Issue No.:**

*1<sup>st</sup> issue*

**Date of issue:**

20/02/2017

**Validity:**

not restricted

This Classification Report consists of 6 pages



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## 1 Introduction

This Classification Report describes the classification that is assigned to the construction product "YSHIELD sheilding paint HSF54"\* on the basis of the method specified in DIN EN 13501-1:2010-01.

## 2 Details of the classified product

### 2.1 Type and application

The construction product "YSHIELD sheilding paint HSF54"\* is an acrylic coating which is used as primer which is coated with a standard dispersion paint.

### 2.2 Description

The construction product "YSHIELD sheilding paint HSF54"\* is described in detail in the Test Reports that are listed in section 3.1 below and on which this classification is based.

## 3 Test report and results as the basis for the classification

### 3.1 Reports

Name of testing laboratory	Client	Report No.	Test method and date
MPA Braunschweig	YSHIELD GmbH & Co. KG Am Schulplatz 2 94099 Ruhstorf	2300/949/16-a - Sta of 20/02/2017	DIN EN ISO 11925-2:2011-02
		2300/949/16-b - Sta of 20/02/2017	DIN EN 13823: 2015-02

\* Specifications provided by the manufacturer

### 3.2 Results for the product „YSHIELD sheilding paint HSF54“\*

Test method	Parameter	No. Of tests	Ergebnisse	
			Continuous Parameters Mean values (m)	Compliance Parameters
DIN EN 13823	<i>FIGRA</i> <sub>0,2 MJ</sub>	3	30,3 <sup>1)</sup>	--
	<i>FIGRA</i> <sub>0,4 MJ</sub>		0,0 <sup>1)</sup>	--
	<i>THR</i> <sub>600s</sub> [MJ]		0,57 <sup>1)</sup>	--
	<i>LFS</i> < Edge		no <sup>1)</sup>	compliance
	<i>SMOGRA</i> [m <sup>2</sup> /s <sup>2</sup> ]		0,0 <sup>1)</sup>	--
	<i>TSP</i> <sub>600s</sub> [m <sup>2</sup> ]		9,9 <sup>1)</sup>	--
	Burning debris / droplets		no <sup>1)</sup>	compliance
DIN EN ISO 11925-2				
Surface flame attack 30 s	<i>F<sub>s</sub></i> ≤ 150 mm	6	--	compliance
	Burning debris / droplets		Ignition of filter paper	--
Edge flame attack 30 s	<i>F<sub>s</sub></i> ≤ 150 mm	6	--	compliance
	Burning debris / droplets		Ignition of filter paper	--

\* Specifications provided by the manufacturer

#### 4 Classification and field of direct application

##### 4.1 Reference of classification

This classification has been carried out in accordance with DIN EN 13501-1:2010-01.

##### 4.2 Classification

*The construction product "YSHIELD sheilding paint HSF54"\* in relation to its fire behaviour is classified:*

**B**

*The additional classification in relation to smoke production is:*

**s1**

*The additional classification in relation to burning debris / droplets is:*

**d0**

The classification format for the reaction to fire for construction products except for floorings, pipe insulation is:

Fire behaviour		Smoke production			burning debris / droplets	
B	--	s	1	--	d	0

**Classification of reaction to fire: B-s1, d0**

\* Classification of reaction to fire

### 4.3 Field of application

This classification covers the following product parameter

<i>Product</i>	<i>Parameter</i>	<i>Validity range of the classification</i>
YSHIELD sheilding paint HSF54*	<i>Application rate (wet)</i>	165 g/m <sup>2</sup> mm ± 15,0 g/m <sup>2</sup>
	<i>Density</i>	1440 kg/m <sup>3</sup> ± 140 kg/m <sup>3</sup>
	<i>Colour</i>	black
Top layer	<i>Type</i>	Dispersion paint
	<i>Application rate</i>	200 g/m <sup>2</sup> ± 20,0 g/m <sup>2</sup>
	<i>Density</i>	1270 kg/m <sup>3</sup> ± 120 kg/m <sup>3</sup>
	<i>Colour</i>	white
Substrate	<i>Type</i>	Gypsum boards as well as substrate with reaction to fire class A1 and A2-s1,d0 with a density ≥ 450 kg/m <sup>3</sup> and thickness ≥ 12,0 mm in accordance to the regulate referred to DIN 13238:2010, section 5.3.2.1 and 5.3.2.2, 5.3.2.4
	<i>Distance to other flat construction products</i>	Direct application (≤ 0 mm), use only in conjunction with top layer

End-use application:

-Paint to shield electromagnetic fields.\*


\*Specifications provided by the manufacturer

## 5 Notes

- 5.1 The classification in section 4 only applies to the construction material described in section 2 above. When combined with other construction materials (e.g. other components, other weight per unit areas or other thicknesses), its reaction to a fire may be adversely influenced so that the above classification no longer applies. The reaction to fire of the construction material when combined with other materials or made from other components or with other thicknesses etc. has to be separately.
- 5.2 This Classification Report is not a type approval or product certification document, and it does not replace the approval that may be required under the German building law (State Government Building Regulations).

*This document is the translated version of Test Report 2300/949/16 dated 20/02/2017 translated on 20/02/2017. The legally binding text is the aforementioned German Test Report.*

Signature

  
N. Stachowski B.Sc.  
Official in charge



Confirmed

  
ORR Dr.-Ing. G. Blume  
Head of Testing Laboratory







**4.2.2 Test results class B1 (Brandschacht)**

Table 3

Test results "Brandschachtprüfung" (part 1)						
line no.		measured values specimen				requirements
		A	B	C	D	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	7	-	-	-	
2	<u>Maximal flame height</u> above bottom edge ..... cm	50	-	-	-	*)
3	Time <sup>1)</sup> ..... min	2	-	-	-	
4	<u>Burning / melting through</u> Time <sup>1)</sup> ..... min	./.	-	-	-	
5	<u>Rear side of the samples:</u> <u>Flames / glowing</u> Time <sup>1)</sup> ..... min:s	No	-	-	-	
6	<u>Discolouring</u> Time <sup>1)</sup> ..... min:s					
7	<u>Falling of burning droplets</u> Begin <sup>1)</sup> ..... min:s	No	-	-	-	
8	Extend: Sporadic falling of burning droplets					
9	Continuous falling of burning droplets					
10	<u>Falling of burning parts</u> Begin <sup>1)</sup> ..... min:s	No	-	-	-	
11	Extend: Sporadic falling of burning parts					
12	Continuous falling of burning parts					
13	<u>Afterflame time at the bottom of the sieve (max.).</u> min:s	./.	-	-	-	
14	<u>Impairment of the burner flames by dropping or falling Material</u> Time <sup>1)</sup> ..... min:s	./.	-	-	-	
15	<u>Premature end of test</u> Final occurrence of burning at the specimen <sup>1)</sup> .....min	10	-	-	-	
16	Time of eventually end of test <sup>1)</sup> ..... min:s	./.	-	-	-	

1) Indication of time: from the beginning of testing procedure

- No data / Not tested

./. Not occurred

\*) No cause for complaint



Test results "Brandschachtprüfung" (part 2)						
line no.		measured values specimen				requirements
		A	B	C	D	
17	<u>Afterflame after end of test</u> Time ..... min:s	No	-	-	-	
18	Number of specimen					
19	Front side of specimen					
20	Back side of specimen					
21	Flame length ..... cm					
22	<u>Afterglow after end of test</u> Time ..... min:s	No	-	-	-	
23	Number of specimen					
24	<u>Place of appearance:</u> Lower half of specimen					
25	Upper half of specimen					
26	Front side of specimen					
27	Back side of specimen					
28	<u>Smoke density</u> ≤ 400 % min	0,9	-	-	-	
29	≥ 400 % min (very strong smoke density)	./.				
30	Diagram fig. no.	1	-	-	-	
31	<u>Residual length</u> Individual value ..... cm	57 58 56 58	- - - -	- - - -	- - - -	> 0
32	Average value ..... cm	<b>57</b>	-	-	-	≥ 15
33	Photo of test specimen fig. no.	2	-	-	-	
34	<u>Flue gas temperature</u> Maximum of average value...°C	105	-	-	-	≤ 200
35	Time <sup>1)</sup> ..... min:s	9:38	-	-	-	
36	Diagram fig. no.	1	-	-	-	
37	<u>Remarks:</u> line 32: Due to the residual length of ≥ 45 cm no additional tests were carried out. (DIN 4102-16:2015-09, 5.2 b))					

Test specimen A (VN 596716-001): Gypsum plasterboards with primer "HSF54" and final coating

<sup>1)</sup> Indication of time: from the beginning of testing procedure

- Not tested

./. Not occurred

\*) No cause for complaint

VN test-number



## 5 Assessment

Section 4.2 lists the test results of the material tested described in section 1 and compares the results with the requirements for not easily flammable building materials acc. DIN 4102-1.

According to the test results the tested primer "HSF54" fulfils the requirements of building materials class B1 according to DIN 4102-1 if applied to solid mineral substrates or non-perforated gypsum plasterboards with a maximum application rate of approx. 160 g/m<sup>2</sup> and final coated with a standard white dispersion coating according to DIN EN 13300 with a quantity of organic constituents of not more than 50% and a wet application quantity of about 190 g/m<sup>2</sup>.

The requirements of building materials class B2 are also fulfilled, no falling of burning parts or droplets occurred during the tests.

The proof of the use after

- exposure to outdoor climate conditions

was not subjects of the tests.

## 6 Special remarks

This report is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or substrates etc. the burning behaviour may differ.

This test report is not valid, as soon as the product is used as a building product in the sense of the "Landesbauordnungen" (Model Building Code, MBO § 17, Abs. 3).

This test report is no substitute for a General Building Inspectorate Certificate.

This test report is granted without prejudice to the rights of third parties, or particular private proprietary rights.

This test report can serve as a basis for building supervisory procedures for:

- regulated building products for the pre scribed proofs of conformity
- non-regulated building products for the needed proofs of applicability.

This test report is valid until 2021-09-30, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 16<sup>th</sup> of October 2016

Head of the test laboratory  
Dipl.-Ing. (FH) Uwe Kühnast



In charge for testing  
Dipl.-Ing. (FH) Manfred Sailer

*This translation was issued on 16<sup>th</sup> of October 2016, in a case of doubt the German version is valid solely.*

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Test specimen A

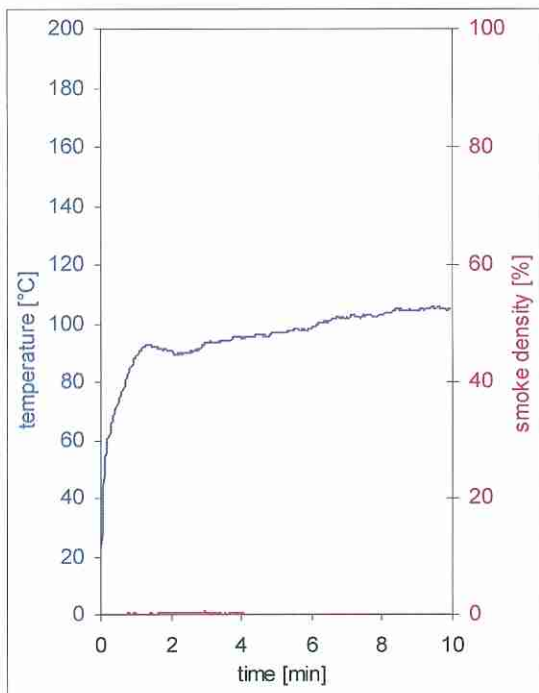


fig. 1  
Graphs of the flue gas temperature and the smoke density

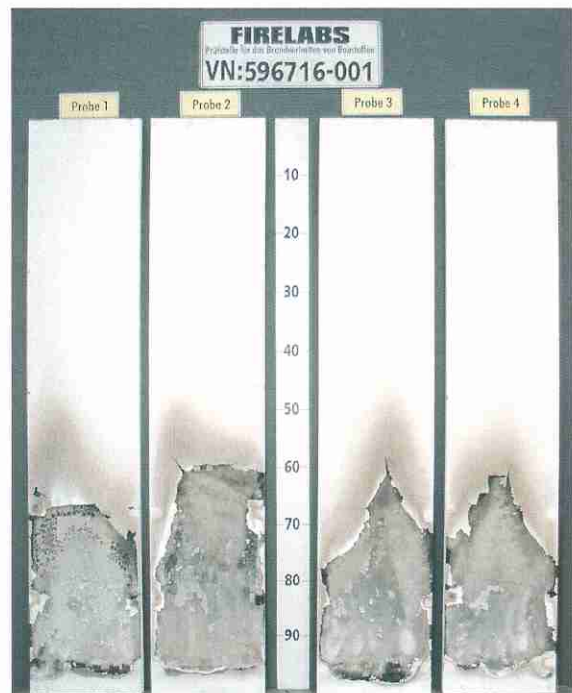


fig. 2  
Photo of test specimen after the test

Test results class B2 ("Brennkasten")

Table 2

	edge flame impingement						surface flame impingement						dim.	requirements
	1	2	3	4	5	-	1	-	-	-	-	-		
Sample-No.	1	2	3	4	5	-	1	-	-	-	-	-	-	-
Ignition of the sample	2	3	2	3	3	-	./.	-	-	-	-	-	s	-
Maximum flame height	1	1	1	1	1	-	2	-	-	-	-	-	cm	-
Time of the maximum	15	15	15	15	15	-	./.	-	-	-	-	-	s	-
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	-	./.	-	-	-	-	-	s	≥ 20
Flame has extinguished before reaching the test mark	16	16	16	16	16	-	./.	-	-	-	-	-	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	-	./.	-	-	-	-	-	s	1)
Smoke density	very low						very low						-	-
Afterburning after end of test	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-

View of the samples after the test (20 seconds after exposure the flame):  
 - damaged and discoloured area at the point of flame impingement: approx. 2 cm height and 1 cm width.

1) No ignition within 20 seconds  
 ./. Not occurred  
 dim. Dimension  
 Indication of time: from the beginning of testing procedure  
 Indication of measurements: from reference line of the flame

