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Classification report
No. 230094-K1

issued 01.03.2023

Applicant: **Hesse GmbH & Co. KG**
Warendorf Straße 21
59075 Hamm
Germany

Order: **Classification of the burning behaviour according to DIN EN 13501-1 (2019-05)**

Date of order **20.12.2022**

Notification number of the test laboratory

NB 1378

Designation of the classificated building product

Product Name: **Hesse PERFECT-FILL HDP 5650-9343:**
Mixing ratio (by volume): 8:1 HYDRO Hardener HDR 5091
Hesse PERFECT-COLOR HDB 54345-(colour tone):
Mixing ratio (by volume): 10:1 HYDRO Hardener HDR 5091

This classification report lays down the classification of the building product above according to the procedures of DIN EN 13501-1.

This classification report is a translation of the German version 230094-K1 (issued 01.03.2023). In case of doubt only the German version is valid.
This classification report contains 5 pages.

1. Description of the material

1.1 Details of the customer:

Product Name:	**Hesse PERFECT-FILL HDP 5650-9343:** **Mixing ratio (by volume): 8:1 HYDRO Hardener HDR 5091** **Hesse PERFECT-COLOR HDB 54345-(colour tone):** **Mixing ratio (by volume): 10:1 HYDRO Hardener HDR 5091**
Face to be tested:	**Veneered lacquered side**

Sample / material description:

Trade Name:	**Hesse PERFECT-FILL HDP 5650-9343:** **Mixing ratio (by volume): 8:1 HYDRO Hardener HDR 5091** **Hesse PERFECT-COLOR HDB 54345-(colour tone):** **Mixing ratio (by volume): 10:1 HYDRO Hardener HDR 5091**
Type of Material:	HYDRO-PUR System
Application quantity:	250 g/m² wet application
Applicated quantity:	1. application: **Hesse PERFECT-FILL HDP 5650-9343:** **Mixing ratio (by volume): 8:1 HYDRO Hardener HDR 5091** → wet application: 150 g/m² 2. application: **Hesse PERFECT-COLOR HDB 54345-(colour tone):** **Mixing ratio (by volume): 10:1 HYDRO Hardener HDR 5091** → wet application: 100 g/m
Colour:	black: HDB 54345-9005 red HDB 54345-3000 white HDB 54345-9343

Sample structure:

Type of surface:	lacquered MDF board
Material of the surface:	MDF
Material of the substrate:	MDF board
Intended end use of product:	**Coating material for premium interior design, staircase construction, etc.**

1.2 At the specimen preparation from the Warringtonfire Frankfurt GmbH determined values:

Lacquered/coated MDF board in different colours

SBI – samples:

Sample No.	Material	Colour No.	Colour	Thickness: [mm]	Surface weight [kg/m²]
1	lacquered MDF board	HDB 54345-3000	red	approx. 20	15,45
2	lacquered MDF board	HDB 54345-9005	black	approx. 20	15,42
3	lacquered MDF board	HDB 54345-9343	white	approx. 20	15,39
4	lacquered MDF board	HDB 54345-9005	black	approx. 20	15,43
5	lacquered MDF board	HDB 54345-9005	black	approx. 20	15,32

Material construction und fixing see pictures below:

picture: fixing of specimen

1.3 Production and pretreatment of the samples for the tests according to DIN EN 13823

The material was provided in the necessary sample dimensions and delivered by the manufacturer for testing.

The lacquer was applied by the manufacturer to an approx. 20 mm thick MDF board.

A 80 mm ventilated cavity was situated between the reverse face of the specimens and the plasterboard substrate in accordance with DIN EN 13823, Point 4.4.10 (calcium silicate, gross density 800 ± 150 kg/m³, thickness 12 ± 3 mm).

The samples were conditioned to constant mass for more than 48h according to DIN EN 13238.

1.4 Production and pretreatment of the samples for the tests according to DIN EN 11925-2

The material was delivered by the manufacturer and prepared by the Warringtonfire Frankfurt GmbH in the required sample dimensions.

The samples were conditioned to constant mass for more than 48h according to DIN EN 13238.

2. Test reports and test results

2.1 Test reports

Name of test laboratory	Customer	Report to form the basis	Test procedure
Warringtonfire, Frankfurt GmbH	**Hesse GmbH & Co. KG**	**230094**	**DIN EN 13823 (SBI)** **EN ISO 11925-2 (30s ignition time surface and edge ignition)**

2.2 Test results

Test procedures	Parameter / classes	Test results average
DIN EN 13823 (SBI)	FIGRA $_{0,2MJ}$ ≤120 [W/s] for class A2 FIGRA $_{0,2MJ}$ ≤ 120 [W/s] for class B	**100,28**
	FIGRA $_{0,4MJ}$ ≤ 250 [W/s] for class C FIGRA $_{0,4MJ}$ ≤ 750 [W/s] for class D	**55,30**
	THR $_{600s}$ [MJ] ≤ 7,5 MJ for class A2 THR $_{600s}$ [MJ] ≤ 7,5 MJ for class B THR $_{600s}$ [MJ] ≤ 15 MJ for class C THR $_{600s}$ [MJ] no requirement for class D	**3,19**
	SMOGRA-index ≤ 30 [m²/s²] für s1 SMOGRA-index ≤ 180 [m²/s²] für s2	**0,00**
	TSP $_{600s}$ ≤ 50 [m²] for s1 TSP $_{600s}$ ≤ 200 [m²] for s2	**38,80**
	LFS < edge of the specimen for class A2 LFS < edge of the specimen for class B LFS < edge of the specimen for class C	**fulfilled**
	no burning dripping off/dropping within 600s for class d0	**fulfilled**
	no burning dripping off/dropping > 10 s within 600s for class d1	**-**
	burning dripping off/dropping > 10 s within 600s for class d2	**-**
DIN EN ISO 11925-2 30s	FS ≤ 150 mm within 60 s for class B, C u. D FS ≤ 150 mm within 20 s for class E	**fulfilled**
	no inflammation of the filter paper within 60 s for class d0	**fullfilled**
	inflammation of the filter paper within 60 s for class d2	**-**

Explanations of table standing to above:
Figra$_{02MJ}$: Heat release rate with consideration of the THR of threshold value of 0,2MJ [W/s]
Figra$_{04MJ}$: Heat release rate with consideration of the THR of threshold value of 0,4MJ[W/s]
THR$_{600s}$: Total set free warmth during 600s [MJ]
SMOGRA: Smoke development rate
TSP$_{600s}$: Total set free smoke quantity during 600s [m²]
LFS: lateral propagation of flames

3 Classification and range of application

3.1 Reference

The classification was carried out according to the chapter 11 of DIN EN 13501-1

3.2 Classification

The tested material is incorporated regarding its behaviour in case of fire into the class **B**.
Concerning the smoke development the tested material is incorporated into the class **s1**.
Concerning the dripping off behaviour the tested material is incorporated into the class **d0**.

The classification of the tested material reads thus:

B – s1, d0

3.3 Area of application

The is only valid the lacquer system described in chapter one,
in the tested in the tested colours white, red and black, thickness, grammage and structure,
applied to an MDF board.

The classification also includes intermediate colours

4 Reservation

This classification report replaces not a possible required type admittance or type certification of the product.

5 Decision rule and measurement uncertainty

In determining the results, the normative test conditions and limits are not adjusted to account for uncertainties in measurement. The determined measurement uncertainties are not combined with the measured results to evaluate compliance with the product specifications.

Frankfurt 01rd March 2023

A. Krouhs /R. Reisenauer
Tester in charge

P. Scheinkönig
Technical Lab Leader construction product regulations

Additional information regarding classification reports according to EN 13501

What is the purpose of a classification report?

A classification report according to EN 13501 arranges a clearly described building product into a class that makes statements about fire behaviour, smoke development and dripping behaviour.
The product must be described in detail, including definition of the specific substrate, the veneer, and the lacquer together with its application quantity; as can be seen here in the example:

1.2 Beschreibung des Bauprodukts
Product description

Spanplatte gem. DIN EN 312 vom Typ „EUROSPAN® Flammex" mit der Brandverhaltensklasse B-s1, d0, hergestellt von der Fa. EGGER. Die Spanplatte mit einer Plattenstärke von 19 mm ist mit Eichenfurnier beschichtet. Folgende Lackkomponenten (in den Glanzgraden 0-9) sind auf die Platte aufgebracht:
Particleboard acc. to EN 312 "EUROSPAN® Flammex", class B-s1, d0 manufactured by EGGER. The particleboard with a thickness of 19 mm is veneered with oak wood. The board is coated with varnish components (in gloss degrees 0-9) as followed:

Lackprodukt / *varnish*	Härter *hardener*	Mischungsverhältnis *mixing ratio*	Verdünner *paint thinner*	Nassauftragsmenge *application rate*
„Hesse PUR Schichtlack DE 4503x" / „Hesse MEGA PUR DE 56x"	„Hesse PUR Härter 4070" / „Hesse PUR Härter DR 470"	10 : 1	20 %	rd. / *approx.* 100 g/m²

Dicke (Spanplatte): rd. / *approx.* 19 mm *)
Thickness (particleboard):

Rohdichte (Spanplatte): rd. / *approx.* 720 kg/m³ **)
Density (particleboard):

*) Messwerte / *measured data*
**) Herstellerangabe / *as given by sponsor*

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This represents a major difference to older national standards, which leave the product description much more open. Under DIN 4102, for example, there is no requirement to define the panel manufacturer or the veneer.
Sample DIN 4102 description of a building product:

1.1 Gegenstand

Farblose Zweikomponenten-Lacksysteme

„Hesse PUR Schichtlacke DE 4503x" (x = 0 bis 9) mit
„Hesse PUR Härter DR 4070" und
„Hesse MEGA-PUR DE 56x" (x = 0 bis 8) mit
„Hesse PUR Härter DR 470",

aufgebracht auf schwerentflammbaren (DIN 4102 - B1) Holzspanplatten – auch furniert – als schwerentflammbarer Baustoff (Baustoffklasse DIN 4102-B1) nach Bauregelliste A, Teil 2, Ausgabe 2015/2 mit Änderungen 2016/1 und Änderungsmitteilung 2016/2, lfd. Nr. 2.10.2.

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The classification report therefore only makes a statement about the conditions under which the product **could be approved** as a building product, and whether low-flammable finishing procedures are even possible in the event of coating.

What does a classification report not represent?

A classification report **does not replace the building approval** and/or product monitoring. These approvals are regulated differently on an international level. In Germany, approval as a building product is granted by the DIBt.

Why are there almost always only classification reports for lacquer products?

The difficulty lies in the detailed description of the finishing procedure. The combination of available substrate materials and veneers results in almost infinite combination options.

It would exceed an economically feasible scope if every possible combination were to be approved by the building authorities.

There are also practical issues, such as in the procurement of dedicated substrates. Not every panel is available in every market. It is also impractical to procure a different panel for each property simply because the approval requires it.
These are reasons why only the classification report is used.

How do you solve the problem of the lack of approval?

Method 1) Seek approval for the specific property. This requires the conditions to be clearly defined to enable property-specific approval.

Method 2) Talk to the person responsible for the building's fire protection concept. With the help of the classification report, experts can also assess and approve suitability beyond the building authority approval.

Why do classification reports exist that are older than five years?

In section 4.4. of the classification report it is stated that test reports older than five years should be checked to ensure they are up to date. We regularly review our published reports. If serious changes have occurred, we are going to check the material again. However, this is not always the case, so it may happen that test reports older than five years can be found on our website. These test reports can be used without restriction.

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