



Abt. Brandschutz - Brandverhalten von Baustoffen / *Reaction to Fire*

Kenn-Nr. / Ident-No. 0672

# PRÜFZEUGNIS (Test Certificate)\*

903 3973 000-1-E– English Version

**Auftraggeber:  
(Client)** DEKRA Testing and Certification GmbH  
Handwerkstraße 15  
70565 Stuttgart

**Betreff:  
(Subject)** Reaction-to-fire testing according to DIN 4102, class B2

**Prüfmaterial:  
(Test Material)** HF-absorber „Universal-Delta“

**Datum (Date):** 13th February 2019 Wbl/

**Gültigkeitsdauer:  
(Period of Validity)** until 31st August 2022

**Hinweise:  
(Notes)** The tested building-material not being used as a construction product according to German building regulations MBO § 2, Abs. 10, no „Allgemeines bauaufsichtliches Prüfzeugnis“ is required. This test certificate is not valid, if the tested product is utilised as construction product according to German building regulations (MBO § 17, Abs. 3).

This test certificate is in no case a substitute for any required certification according to German building regulations.

In cases where approvals are required by German building regulations and authorities, this test certificate may be utilised for issuing these approvals according to Bauregelliste:

- Übereinstimmungsnachweise (certificate of conformity)
- Verwendbarkeitsnachweise (certificate of usability) Allgemeines bauaufsichtliches Prüfzeugnis, Allgemeine bauaufsichtliche Zulassung). The notes in annex D of DIN 4102-1 are to be considered in particular. In cases of doubt, the German version is valid.

\* This test certificate is the English version of test certificate 903 3973 000 dated 11.08.2017. In cases of doubt the German version is valid.

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Materialprüfungsanstalt Universität Stuttgart  
Pfaffenwaldring 32  
70569 Stuttgart (Vaihingen)  
USt-ID-Nr. DE 147794196

Telefon:(0711) 685 - 0  
Telefax:(0711) 685 - 62635  
Internet: www.mpa.uni-stuttgart.de

BW-Bank Stuttgart / LBBW  
Konto-Nr. 7 871 521 687 BLZ 600 501 01  
IBAN: DE51 6005 0101 7871 5216 87  
BIC/SWIFT-Code: SOLADESTXXX





On 7th July 2017 we were requested to perform reaction-to-fire tests according to DIN 4102, class B2.

1. Material Description and material specifications

The pyramidal-shaped HF-absorber as stated by the sponsor is made of a plastic material (60 %), which is filled with ecowool (38,5 %) and carbon fibres (1,5 %)

Thickness of the plastic: 1,35 mm \*

Density of the plastic: 1150 kg/m<sup>3</sup> \*

Mass per unit area of the plastic: 1560 kg/m<sup>2</sup> \*

\*) measured values

Field of application: lining of anechoic chambers

Trade name: "Universal-Delta"

Manufacturer: Elix-St. GmbH  
Geisinger Weg 18B  
70439 Stuttgart

Sampling: by customer

Receipt of samples: 28th July 2017 (receipt-no. 17/211)

Quantity: 15 absorbers in the colour light grey

2. Sample Preparation

The samples, 190 mm x 90 mm and 230 mm x 90 mm, had been cut from the absorbers representatively.

3. Test Procedure

The tests had been performed according to standard DIN 4102-1 : 1998, clause 6.2.5. Flame was applied with surface exposure on the centre-line of the specimen 40 mm above the bottom edge, and with edge exposure to the mid-point on the bottom.

For conducting these tests, additional specimen had been backed by substrates of:

- Fibre-cement board (FC) acc. to DIN 4102-16, clause 4.4 a)
- Aluminium sheet (Alu) acc. to DIN 4102-16, clause 4.4 d) II.



4. Test Results

Test No.	1	2	3	4	5
Exposure conditions *	F			K	
Substrate	FZ	Alu	--	FZ	Alu
Ignition	7			immediately	
Max. flame height within 20 s reached after	5	5	5	5	5
Measuring-mark reached after	15	15	15	15	15
Flames extinguished after:	-	-	-	-	-
Smoke development:	very high				
Filter paper ignited after:	-	-	-	-	-

Test No.	6	7	8	9	10
Exposure conditions *	K				
Substrate	--				
Ignition	immediately				
Max. flame height within 20 s reached after	5	5	5	5	5
Measuring-mark reached after	15	15	15	15	15
Flames extinguished after:	-	-	-	-	-
Smoke development:	very high				
Filter paper ignited after:	-	-	-	-	-

\* K = edge exposure; F = surface exposure

5. Classification

All of the tested specimen passed the test according to DIN 4102-1, clause 6.2.5.

Thus, the material HF-absorber as described in clause 1 meets the requirements for class B2 according to DIN 4102-1 : 1998.

The material did not show any burning droplets or glowing when tested in accordance with DIN 4102-1, clause 6.2.5 and is classified as "nicht brennend abtropfend" (non-separating flaming debris).





6. Notes

6.1 The building material HF-absorber has to be labelled according to DIN 4102-1, clause 7 as follows:

DIN 4102 - B2

6.2 Classification in class B2 is valid solely for the HF-absorber as described in clause 1, alone or in direct connection with massive mineral substrates with a density  $\geq 1500$  kg/m<sup>3</sup> and a thickness  $\geq 6$  mm or on metallic substrates with a density  $\geq 2025$  kg/m<sup>3</sup>, a melting-point  $\geq 500$  °C and a thickness  $\geq 0,8$  mm.

Used in connection with other combustible materials its fire performance is likely to be influenced this negatively that the given classification in clause 5 is no longer valid. Fire performance in connection with other combustible materials is to be tested and classified separately.

6.3 Classification in clause 5 of this test certificate expires by 31st August 2022. Validity may be extended on request. Therefore, additional tests may be necessary.

6.4 This test certificate is in no case any substitute for „Allgemeines bauaufsichtliches Prüfzeugnis“ or „Allgemeine bauaufsichtliche Zulassung“.

Abteilung Brandschutz  
Referat Brandverhalten von Baustoffen

Der Bearbeiter  
(The Engineer in Charge)

Dipl.-Ing. (FH) Frank Waibel



Der Leiter der Prüfstelle  
(Head of Notified Fire Testing Department)

Dr. Stefan Lehner, Ltd. Akad. Direktor