

TRANSLATION OF ORIGINAL COPY CERTIFICATE NO. Z-19.11-1533

Certificate no. Z-19.11-1533

Valid till : 31 March 2014

Client :

MARVON SRL

Via Gargnà 6 -25078 Vestone (BS) Italy

Product certificated :

TECNOFLAME

The above mentioned certificate consists in total of 6 pages.

This certificate replace the previous one dated 9 May 2006 which replaced the first one Issued on 4 March 2003.

University of Stuttgart

Control Report -

Order to extend the authorization of NO.: Z-19.11 - 1533 –

Client: Marvon SRL

VIA GARGNA '6

25078 Vestone – BS

ITALY

MPA Order No: **901 4075 000 / Stae.**

Tested material : **Tecnoflame**

Tests specification : Approval principles for building materials guideline for supervision of construction materials .

Date of Examination: 12.03.2009

Date of report: 12.03.2009

1.Mission :

Summary audit report on the external auditing/ tests for the product "Tecnoflame"

Pursuant to the building approval certificate **no.: Z-19.11 - 1533** Monitoring Report No.3

Sample material: On 20.10.2004 Mr. Stäudinger took from the factory Marvon :

30 meters "Tecnoflame" with glass fibre insert with adhesive tape, with dimensions of 2.0 x 200 mm.

30 meters Tecnoflame without glass fibre insert with adhesive tape, with dimensions of approximately 3.0 x 200 mm

2 General

With the date of 01.09.2004 was signed between:

Marvon SRL

VIA GARGNA '6

25078 Vestone - BS

ITALY

And:

Materials Testing Institute

Otto-Graf-Institut, Universität Stuttgart

Pfaffenwaldring 32

70 569 Stuttgart

A monitoring contract for the monitoring of intumescent seals "TECNOFLAME 'program.

Basis of supervision, the general building approval certificate NO. Z-19.11-1533

Of the German Institute for Construction Technology, as amended.

This report relates to the aging samples test of approximately 4.5 years old samples.

3. Previous investigations

According to the above general technical approval are the following points 3.1 and 3.2 in the context of the foreign surveillance.

3.1 Review of factory production control

Within the monitoring period was specified by the contracting authority no production for the German market, for this reason there were no external monitoring carried out in the factory.

Checked material

Within the monitoring period was specified by the contracting authority no production for the German market, for this reason, no samples were taken.

4. Test results:

The results of the aging tests are tabulated in the Appendix below.

5. Result interpretation and recommendations:

The investigations carried out showed that the samples taken on 20.10.2004 "Tecnoflame" in the general technical approval NO. Z-1911-1533 Deutsch the Institute for Construction Technology, Berlin fulfill all requirements.

The results of aging tests are within the limits of variation for the characteristics of foam and expansion pressure factor.

We approve the demand of Marvon for the extension of the certificate issued by the Materials Testing Institute, Otto-Graf-Institut, Universität Stuttgart .

Results of aging tests for the product "Tecnoflame"

Pursuant to the general technical approval N.: Z-19.11-1533

Tecnoflame seal with fibre glass with adhesive :

| | Initial test | Aging test after 2 years | Aging test after 4.5 years |
|---|---|---------------------------------|--|
| Foam height with load 30',450°C | 5,3; 5,2; 5,1;5,4 Medium value = 5,3 | - | 5,6;5,4;5,4;5,4 Medium Value= 5,5 |
| Expansion pressure factor in N/mm 2 300 ° C, Ring 4 mm, crack 4,5 mm | 0,93;0,74;0,66;0,73 Medium Value = 0,77 | - | 1,16; 1,05; 1,10;1,16 Medium Value = 1,12 |

Tecnoflame seal without fibre glass with adhesive :

| | Initial test | Aging test after 2 years | Aging test after 4.5 years |
|---|---|---|---|
| Foam height with load 30',450°C | 8,0; 7,1; 6,9; 7,7 Medium value = 7,4 | 6,9;7,0;6,9;6,8 Medium value = 6,9 | 8,0; 6,0; 6,8; 6,0 Medium value = 6,7 |
| Expansion pressure factor in N/mm 2 300 ° C, Ring 4 mm, crack 4,5 mm | 0,73; 0,78;0,93;0,73 Medium value = 0,79 | - 0,84;1,02;0,89;0,75 Medium value =0,88 | 1,14; 0,98; 1,17;1,15 Medium value =1,11 |

Chart tests :

Test 1 – 4 = Tecnoflame with fibre glass with adhesive

Test 5 – 8 = Tecnoflame without fibre glass without adhesive

Timing = minutes

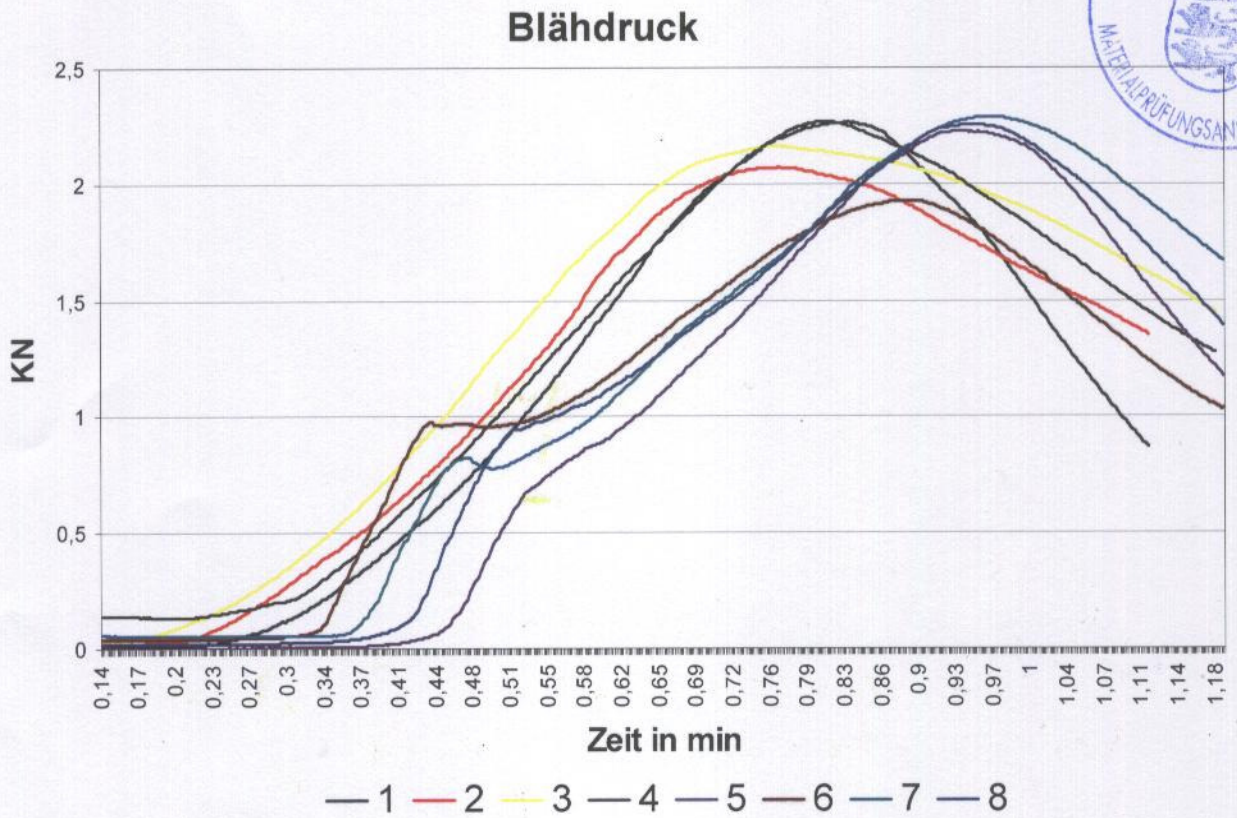


Diagramm 1: Probe 1 - 4: „Tecnoflame“ mit Glasgewebe, mit Klebeband

Probe 5 - 8: „Tecnoflame“ ohne Glasgewebe, mit Klebeband