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# Test report

# P 5247-2-E

Testing order: **Test of the waterproofing system**

**RAPIDFLEX**

**as a liquid applied roof waterproofing kit based on polymer modified bitumen emulsion**

Customer: **Pazkar LTD.**
**Alon Tavor**
**Industrial Zone**
**AFULA 18000**
**Israel**

Persons in charge: **J. Magner**
**D. Thron**

Date of the test report: **2008-09-19**

This test report comprises: **6 pages**

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# C O N T E N T S

## 1 SUBJECT

Polymer Institut has been charged by Pazkar Ltd, IL-Afula, to test the waterproofing system based on

**RAPIDFLEX**

according to series of testing procedures for roof waterproofing systems described in:

*ETAG 005* *Guideline for European Approval of liquid applied roof waterproofing kit*
*part 1:* *General-revised version 03/04*
*part 2:* *Specific stipulations for kits based on polymer modified bitumen emulsions and solutions - revised version 03/04*

According to the manufacturers description Rapidflex is *two components, rapid drying elastomeric waterproofing bituminous liquid membrane for heavy duty applications*.

## 2 WATERPROOFING SYSTEM

The presented waterproofing kit consists of the following products / steps:

- **Liquid membrane, 1st layer - Rapidflex**
- **Polyester geotextile**
- **Liquid membrane, 2nd layer - Rapidflex**

Rapidflex is a applied by a double head spraying machine. One nozzle sprays the bituminous component of Rapidflex and the second sprays the accelerator in a mixing ratio of 10:1.

remark:
a closer description of the type of the materials is given in 'Section One, Chapter 3 – Terminology' of the a.m. part 2 of ETAG 005.

## 3 PREPARATION OF THE SPECIMENS

On the manufacturers production side the specimens for the tests were produced by the commissioner under the surveillance of a member of Polymer Institut.

Several types of samples have been manufactured:

- free films of the waterproofing kit of Rapidflex including reinforcement
- concrete slabs with the waterproofing system, partially including all steps

**'Free films'**

Free films of the waterproofing layer Rapidflex were produced by spray application on silicone paper at outside conditions.
consumption: 1,0 kg/m²

A polyester geotextile (200 g/m²) was laid over a silicone paper. Rapidflex emulsion without accelerator was sprayed over the geotextile until the geotextile was totally soaked in

After a drying process of 24 h at ambient conditions a final layer of Rapidflex with accelerator in a mixing ratio of 10 : 1 was applied, consumption: 1 kg/m²
total thickness: 1,5 mm

**Combined specimen**

For the combined specimen the waterproofing system was applied on concrete slabs in the above mentioned procedure.

All test specimens were stored at laboratory climate for at least 14 days before the start of the tests.

## 4 TEST SCHEME / RESULTS

The following table gives an overview of the executed tests to which the specimens of Rapidflex were subjected and the results.

| No. | item | chapter | normative reference | result |
|---|---|---|---|---|
| 1 | Resistance to water vapour | 5.3.3.1 | EN 1931 | $S_d$ value: 2.0 m<br>µ value: 1350 |
| 2 | Water tightness | 5.3.1.2 | TR 003 | dense: 0,1 atm over 24 h |
| 3 | Resistance to wind loads<br>*fully bonded assembled system,: ii)* | 5.3.3.1 | TR-004 | >80 kPa on concrete |
| 4 | Resistance to dynamic indentation | 5.3.3.2.1 | TR-006 | dense<br>on concrete: category I 2 |

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| | | | | |
|---|---|---|---|---|
| 5 | Resistance to static indentation | 5.3.3.2.2 | TR-007 | dense<br>on concrete: category L 2 |
| 4/5 | user load category | | | on concrete P2 : I 2 / L 2 |
| 6 | Resistance to fatigue movement | 5.3.3.3 | TR-008; 1000 cycles | W 2 500 cycles / - 10 ℃ dense |
| 7 | Resistance to low temperatures | 5.3.3.4.1 i) | TR-006 at –20 ℃ | TL 3 - dense after dyn. / stat. indentation |
| | | *add* 5.3.3.4.1 ii) | EN 1109-2 | - 10 ℃ |
| 8 | Resistance to high temperatures | 5.3.3.4.3 | TR-004 +40 ℃ | adhesion: > 50 kPa |
| | | | TR-007 +90 ℃ | TH 4 - dense after stat. indentation: category L 2 |
| | | | TR-009 | Roof slope : S 1 to S 4 |
| 9 | Resistance to heat ageing | 5.3.3.5.1 i) | TR-011: 70 ℃ | climatic zone category: S severe; working life category: W 2 (200 d)<br>dense after dyn. indentation category I 2 |
| | | *add* 5.3.3.5.1 ii) | TR-008 50 cycles at –10 ℃ | dense, no crack, no delamination |
| 10 | UV-radiation in the presence of moisture | 5.3.3.5.2<br>5.3.3.5.2. i)<br>*add*. | TR-010 exposure: 1000 MJ/m² (W3)<br>TR-006 –10 ℃<br>EN 1109 | dense, category: I 2<br>-10℃ |
| 11 | Resistance to water ageing | 5.3.3.5.3 i) | TR-012 60℃ | exposure time 60 days (W 3), dense, category L 2 |
| 12 | Resistance to plant roots * | 5.3.3.6 | DIN 4062 | proof in comparison with bitumen |

*legend:*

| | |
|---|---|
| *EN* | *European norm* |
| *TR* | *EOTA Technical Report* |
| *DIN* | *Deutsche Industrie Norm* |
| *add* | *additional specific method for verification acc. to part 2 of ETAG 005* |
| * | *with 2 % of Additive* |

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## 5 SUMMARY

On behalf of Pazkar Ltd, IL-Afula, Polymer Institut has tested the waterproofing roof system

**RAPIDFLEX**

according to series of testing procedures for roof waterproofing systems described in

*ETAG 005* *Guideline for European Approval of liquid applied roof waterproofing kit*
*part 1:* *General-revised version 03/04*
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**The tested roof waterproofing system Rapidflex shows sufficient results and meets the specified requirements.**

Flörsheim-Wicker 2008-09-19

The head of the testing department


Jürgen Magner