



# Polymer Institut

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Akkreditiertes Prüflaboratorium nach DIN EN ISO 17025 - DAP-PL-01.004-00

Anerkannte P-Ü-Z-Stelle für Bauprodukte gemäß Hessischer Bauordnung § 28.1

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*Notified body under Construction Products Directive (89/106 EEC) - Ident.-no 1119*



## Test report

### P 4730-3-e

Testing order:

**Testing of plastic material**

**Polat High Resistant Floor (817)**

Customer:

**Polat S. A.**  
**34, 25th Martiou Str., N. Efkarpi**  
**56429 Thessaloniki/Greece**

Persons in charge:

**J. Magner**  
**Dipl.-Ing. (FH) N. Treichel**

Date of the test report:

**2007-11-01**

This test report comprises:

**9 pages**

The test results exclusively refer to the tested materials.  
The publication of the test report in extracts, and references to tests for advertising purposes require our written agreement in each individual case.



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## 1 SUBJECT

The Polymer Institut has been charged by the Polat S. A., Thessaloniki/Greece, to carry out plastic material tests of the material

### Polat High Resistant Floor (817).

#### 1.1 Testing programme

- a. Compressive strength at 23 °C and at -20 °C in accordance with ASTM D 695-96
- b. Flexural strength at 23 °C and at -20 °C in accordance with ASTM D 790-90
- c. Tensile strength at 23 °C in accordance with ASTM D 638-90
- d. Shore D hardness at 23 °C in accordance with ASTM D 2240-00
- e. Adhesive strength at 23 °C in accordance with EN ISO 4624 in combination with Epoxy Primer (824)
- f. Water absorption at 23 °C in accordance with ASTM D 570-98

## 2 RECEIPT OF SAMPLES

On 2006-12-06 the following materials have been submitted to the Polymer Institut by the customer:

Table 1: Receipt of samples

No.	Material designation	Quantity [kg]
1	Polat High Resistant Floor (817), component A	1,9
2	Polat High Resistant Floor (817), component B	0,6
3	Polat High Resistant Floor (817), component C	2,5
4	Epoxy Primer (824), component A	2,5
5	Epoxy Primer (824), component B	2,5



### 3 PREPARATION OF TEST SPECIMENS

#### 3.1 Preparation of the mixtures

The mixing proportions of the materials used are to be taken from the following table.

Table 2: *Mixing proportions*

Material	Mixing proportion in parts by mass		
	Component A	Component B	Component C
Polat High Resistant Floor (817)	38	12	50
Epoxy Primer (824)	1	1	-

The materials have been measured out in the above mixing proportion and mixed to homogeneity (about 3 min) using a laboratory propeller stirrer.

#### 3.2 Coating of the substrates

The substrates have been coated at standard atmosphere DIN 50014-23/50-2 in accordance with specifications of the customer by an employee of the Polymer Institut.

Table 3: *Coating of the substrates*

	Consumption in [g/m²] - Mean values -	
	1	2
Substrate	<i>Primer</i> Epoxy Primer (824)	<i>Coating</i> Polat High Resistant Floor (817)
Concrete slabs 300 mm x 300 mm x 40 mm	170	ca. 2.200
Application tool	Roller	Smoothing trowel
Waiting times	1 day	

#### 3.3 Preparation of the free specimens

The test specimens have been prepared as indicated in the respective standard using the mixed material *Polat High Resistant Floor (817)*. The dimensions of the used test specimens are given in the respective clause. Prior to testing, the test specimens have been stored at standard atmosphere DIN 50014-23/50-2.





#### 4.2 Flexural strength at 23 °C and at -20 °C in accordance with ASTM D 790-90

The flexural strength has been determined retaining the following test conditions:

Test apparatus: Universal testing machine UPM 1445, company Zwick, in accordance with ISO 5893  
Test specimen: Prism, 80 mm x 10 mm x 4 mm  
Test temperature: 23 °C and -20 °C  
Test speed: 2 mm/min  
Type of loading: Three-point-bending  
Number of specimens: 5 for each test temperature  
Evaluation: Bending strength = Bending stress at maximum force in MPa

The result is to be taken from table 5 as mean value of 5 single values.

Table 5: Flexural strength

Material	Flexural strength at 23 °C [M Pa]	Flexural strength at -20 °C [MPa]
Polat High Resistant Floor (817)	69,6	98,0

#### 4.3 Tensile strength at 23 °C in accordance with ASTM D 638-90

The tensile strength has been determined retaining the following test conditions:

Test apparatus: Universal testing machine UPM 1445, company Zwick, in accordance with ISO 5893  
Test specimen: Type 1  
Test temperature: 23 °C  
Test speed: 5 mm/min  
Number of specimens: 5  
Evaluation: Tensile strength = Tensile stress at maximum force in MPa

The result is to be taken from table 6 as mean value of 5 single values.

Table 6: Tensile strength

Material	Tensile strength [M Pa]
Polat High Resistant Floor (817)	18,4



#### 4.4 Shore D hardness at 23 °C in accordance with ASTM D 2240-00

The Shore D hardness has been determined after 7 days at standard atmosphere DIN 50014-23/50-2 retaining the following test conditions:

Test apparatus: Type 38210 of company Karl Frank GmbH  
 Test specimen: Free specimen, Ø 60 mm, thickness 5 mm  
 Measuring time: 3 s  
 Test temperature: 23 °C  
 Number of measurements: 5

The result is to be taken from table 7 as mean value of 5 single values.

Table 7: Shore D hardness

Material	Shore D
Polat High Resistant Floor (817)	83

#### 4.5 Adhesive strength at 23 °C following DIN EN ISO 4624

The adhesive strength of the coating system including as primer *Epoxy Primer (824)*, as indicated in table 3, has been determined retaining the following test conditions:

Test apparatus: Company Freundl F20 D Easy M 2000  
 Test cylinder: Steel cylinder Ø 50 mm, instead of Ø 20 mm  
 Adhesive: 2-component polyurethane adhesive  
 Test speed: 100 N/s  
 Test temperature: 23 °C  
 Number of measurements: 5

The result is to be taken from table 8 as mean value of 5 single values.

Table 8: Adhesive strength

Materials	Adhesive strength [N/mm <sup>2</sup> ]	Area of failure
Epoxy Primer (824) Polat High Resistant Floor (817)	3,1	100 % cohesion failure in concrete



#### 4.6 Water absorption at 23 °C in accordance with ASTM D 570-98

The water absorption has been determined using free specimens retaining the following test conditions:

Dimensions of specimens: 60 mm x 60 mm x 1 mm  
 Conditioning: 24 h at 50 °C  
 Test medium: Demineralised water  
 Test temperature: 23 °C  
 Test procedure: Long-time immersion  
 Time period of immersion: 22 days (maximum water absorption)  
 Re-drying: 24 h at 50 °C  
 Evaluation: Water absorption after 22 d  
 Mass difference after re-drying in % by mass  
 Diagram water absorption as a function of time  
 (square root function)

The result is to be taken from table 9 as mean value of 3 specimens. The diagram of the water absorption as a function of time (square root function) is given in figure 1.

Table 9: Water absorption

Material	Water absorption after 22 d immersion time [% by mass]	Mass difference after re-drying [% by mass]
Polat High Resistant Floor (817)	1,2	-0,15

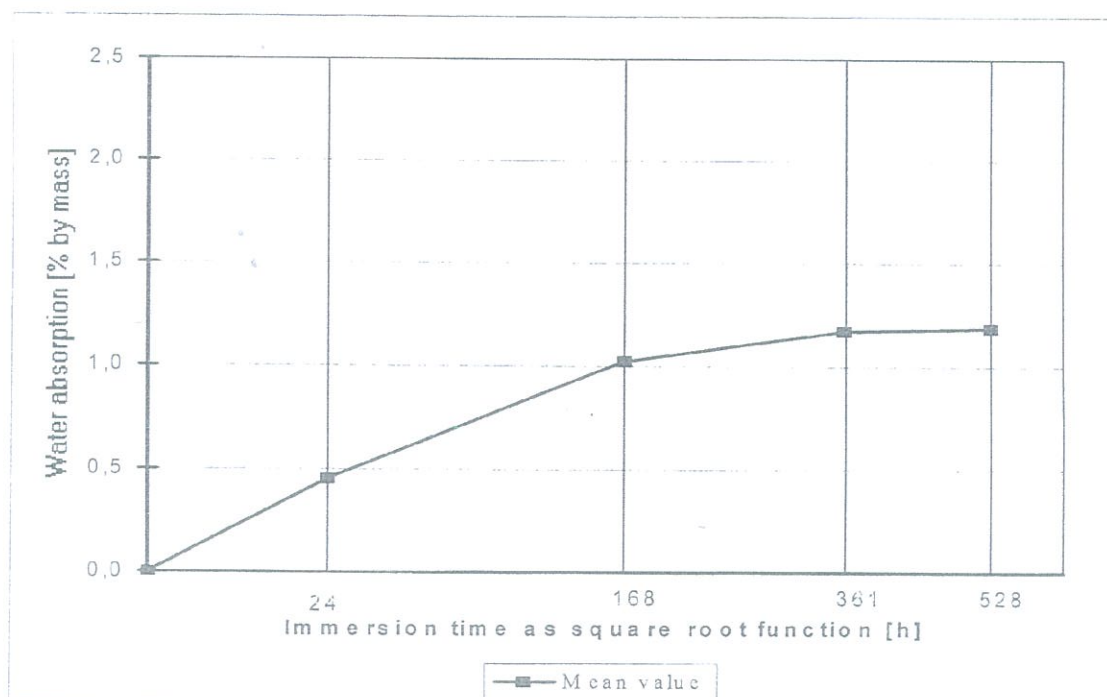


Figure 1: Water absorption as function of the immersion time (square root function)



## 5 SUMMARY

On behalf from the Polat s. A., Thessaloniki/Greece, plastic material tests of the material

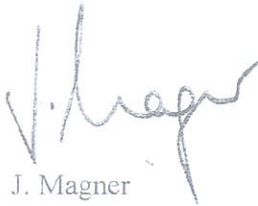
### **Polat High Resistant Floor (817)**

have been carried out at the Polymer Institut.

The results are to be taken from the preceding clause 4.

Flörsheim-Wicker, 2007-11-01

The heads of the testing laboratory

  
J. Magner



The person in charge

  
Dipl. Ing. (FH) N. Treichel