

Investigation Report

Client: Porplastic Sportbau v. Cramm
Hohenneuffenstraße 14
72622 Nürtingen
Germany

Order-No. (Client):

Order-No. (MPA): **901 7127 000-60 /Kf/Whr**

Test Item: **Point-elastic sports floors
Product line "PORPLASTIC INDOOR PEL extra"**

Specification Applied: DIN V 18032-2:2001-04

Date of Receipt of Test Item 05-07-2009

Date of Test: beginning 05-12-2009

Date of Report: 10-16-2009

Page 1 of 5 text pages

Enclosures : 2

Supplements:

Total Number of Pages: 7

Number of Reports: 2 x Porplastic (1 Original, 1 copy)

The test results relate only to the items tested.

Publication of this report in full or partly is only allowed with written authorization by MPA University of Stuttgart.

1 Purpose of investigation

We have been commissioned with tests on the point-elastic sports floors of the product line „PORPLASTIC INDOOR PEL extra“ according to DIN V 18032-2:2001-04.

For the tests on 05-07-2009 we got samples with the following dimensions 1,0 m x 1,0 m with a T-joint in the elastic layer.

Testing date: beginning 05-12-2009

2 Construction of the sports floor

Top layer approx. 2 mm PUR-coating with PUR-sealing (same for all types)

Elastic layer approx. x mm PUR-compound foam with rubber granules
(prefabricated mat)

a) **PORPLASTIC INDOOR PEL extra 6+2**
(thickness elastic layer approx. 6 mm)

b) **PORPLASTIC INDOOR PEL extra 8+2**
(thickness elastic layer approx. 8 mm)

bulk density ¹⁾ : approx. 340 kg/m³

compression
modulus ²⁾ : approx. 0,84 N/mm²

3 Testing procedure

The test were carried out according DIN V 18032-2:2001-04

The procedures applied which are accredited according to DIN EN ISO/IEC 17025:2005 (DAR-registration-no. DAP-PL-2907.07) are signed with ■.

Testing conditions: 23-50-2 according to DIN 50014 (if otherwise not stated).

¹⁾ Determined according to DIN 53 420

²⁾ Determined in accordance with DIN 53 577 (compression 20 %, testing speed 2 x thickness of the elastic layer in mm/min)

System testing spot 1 was placed over a T-joint of the elastic layer, system testing spot 2 over a length joint of the elastic layer and system testing spot 3 over a face joint of the elastic layer. The other testing spots 4 and 5 were placed in the area.

4 Test results

In the following tables the min. and max. values of the test results are summarized and as a comparison the requirements in DIN V 18032-2:2001-04 are tabulated.

The individual test results are tabulated in the enclosures 1 and 2.

**Table 1: Test results (average) and comparison with the requirements of
DIN V 18032-2:2001-04
a) PORPLASTIC INDOOR PEL extra 6+2**

Tests according to DIN V 18 032-2:2001 04		Test results		Requirements according to DIN V 18 032-2:2001-04
		min. value	max. value	
Force reduction	FR ₅₅	33 %	---	category 1: min. 51 % category 2: min. 45 %
Vertical deformation	VD	--	1,9 mm	category 1: max. 3,5 mm category 2: max. 3,0 mm
Thickness factor	TF	3,2	---	min. 4,0
Area deflection w ₁₀₀	I	--	0 %	max. single value: 0 %
	II	--	0 %	
	III	--	0 %	
	IV	--	0 %	
Behaviour under a rolling load - axle load without damage - BRL		1000 N	--	1000 N
Impact resistance at 10 °C	IR	13 Nm	--	min. 8 Nm
Residual impression	RE	--	0,30mm	max. 0,5 mm

**Table 1: Test results (average) and comparison with the requirements of
DIN V 18032-2:2001-04 (continuation)
a) PORPLASTIC INDOOR PEL extra 6+2**

Tests according to DIN V 18 032-2:2001 04		Test results		Requirements according to DIN V 18 032-2:2001-04
		min. value	max. value	
Ball rebound	BR	98 %	--	min. 90 %
Sliding properties ¹⁾	SP	0,42	0,44	min. 0,4; max. 0,6

¹⁾ new, not treated with any cleaning materials

**Table 2: Test results (average) and comparison with the requirements of
DIN V 18032-2:2001-04
b) PORLASTIC INDOOR PEL extra 8+2**

Tests according to DIN V 18 032-2:2001 04		Test results		Requirements according to DIN V 18 032-2:2001-04
		min. value	max. value	
Force reduction	FR ₅₅	41 %	---	category 1: min. 51 % category 2: min. 45 %
Vertical deformation	VD	--	2,4 mm	category 1: max. 3,5 mm category 2: max. 3,0 mm
Thickness factor	TF	3,3	---	min. 4,0
Area deflection w ₁₀₀	I	--	0 %	max. single value: 0 %
	II	--	0 %	
	III	--	0 %	
	IV	--	0 %	
Behaviour under a rolling load - axle load without damage - BRL		1000 N	--	1000 N
Impact resistance at 10 °C	IR	12 Nm	--	min. 8 Nm

**Table 2: Test results (average) and comparison with the requirements of
DIN V 18032-2:2001-04 (continuation)
b) EVERLASTIC PEL extra 8+2**

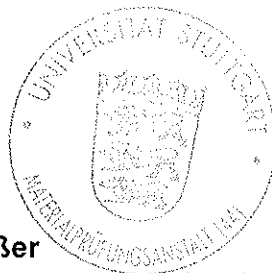
Tests according to DIN V 18 032-2:2001 04		Test results		Requirements according to DIN V 18 032-2:2001-04
		min. value	max. value	
Residual impression	RE	--	0,39 mm	max. 0,5 mm
Ball rebound	BR	97 %	--	min. 90 %
Sliding properties ¹⁾	SP	0,42	0,44	min. 0,4; max. 0,6

¹⁾ new, not treated with any cleaning materials

Prepared by



Dipl.-Ing. Rainer Wellhäuser
Tester



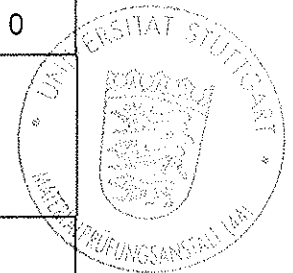
Approved and released by



Dipl.-Ing. Hans-Peter Knauf
Section leader „Sports floors, sports facilities“

**Table 3: Individual test results
a) PORLASTIC INDOOR PEL extra 6+2**

Test			System testing spot				
			1	2	3	4	5
Force reduction	FR ₂₂	%	34	33	33	34	34
	FR ₅₅	%	--	--	--	--	--
	FR ₈₈	%	--	--	--	--	--
Vertical deformation	VD	mm	1,9	1,8	1,9	1,9	1,9
Thickness factor	TH	-	3,2	3,3	3,2	3,2	3,2
area deflection	W _{100I}	%	0	0	0	0	0
	W _{100II}	%	0	0	0	0	0
	W _{100III}	%	0	0	0	0	0
	W _{100IV}	%	0	0	0	0	0
Behaviour under a rolling load - axle load without damage -			1000				
	BRL	N					
Impact resistance							
at 10 °C	SF _{new}	Nm	15	14	15	14	15
	SF _{old}	Nm	13	13	14	13	13
at 15 °C	SF _{new}	Nm	16	15	16	15	16
at 23 °C	SF _{new}	Nm	17	16	17	16	17
Residual impression			0,29	0,27	0,28	0,30	0,28
	RI	mm					
Ball rebound	BR	%	99	99	98	99	98
Sliding properties	SP	-	0,44	0,40	0,43	0,44	0,42



**Table 4: Individual test results
b) PORPLASTIC INDOOR PEL extra 8+2**

Test			System testing spot				
			1	2	3	4	5
Force reduction	FR ₂₂	%	41	41	42	41	41
	FR ₅₅	%	--	--	--	--	--
	FR ₈₈	%	--	--	--	--	--
Vertical deformation	VD	mm	2,3	2,3	2,4	2,3	2,3
Thickness factor	TH	-	3,5	3,5	3,3	3,5	3,5
area deflection	W _{100I}	%	0	0	0	0	0
	W _{100II}	%	0	0	0	0	0
	W _{100III}	%	0	0	0	0	0
	W _{100IV}	%	0	0	0	0	0
Behaviour under a rolling load - axle load without damage -	BRL	N	1000				
Impact resistance							
at 10 °C	SF _{new}	Nm	13	13	12	13	13
	SF _{old}	Nm	11	12	11	12	11
at 15 °C	SF _{new}	Nm	14	15	14	14	145
at 23 °C	SF _{new}	Nm	15	16	15	15	
Residual impression	RI	mm	0,39	0,37	0,35	0,37	0,38
Ball rebound	BR	%	97	98	98	98	97
Sliding properties	SP	-	0,44	0,40	0,43	0,44	0,42

