



Daun, 15.01.2018 Th/Ka

Test report

No. 1061-17

Client: HAHN Kunststoffe GmbH
Building 1027
55483 Hahn-Airport

Material: Load-bearing slabs of recycled plastic,
3 plastic slabs 400 × 400 × 50 mm

Subject: Performance of load tests
with deformation measurement

**Receipt of
samples:** 12.10.2017

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II Preliminary remarks

II.1 Procedure and assignment

The Eifelinstitut was commissioned with executing load tests of load-bearing slabs of recycled plastic. The client delivered five 400 x 400 x 50 mm slabs for this purpose on 12.10.2017.

III Execution of tests

The test was conducted in a vertex pressure testing machine with a testing velocity of 5 mm/min. The load was transferred to the plastic slab by means of a steel plate with a side length of 100 mm. The 50 mm thick slabs were tested on a rigid support of steel tiles. The following figure illustrates the test setup.



Figure 1: Load test with rigid support

IV Examination results

IV.1 Dimensions

Table 1: Dimensions.

Supporting slab	Length [mm]	Width [mm]	Thickness* [mm]	Evenness referred to the diagonal [mm]	Weight [kg]	Gross density [kg/m³]
1	398	398	49	6	7,15	921
2	398	398	49	4	7,27	936
3	398	398	49	2	7,17	923
Mittelwert	398	398	49	4	7,20	927

* Mean value from 4 individual measurements.

IV.2 Load tests

The following table shows the results of the load tests at different plastic slabs.

Table 2: Test results, slab format 400 × 400 × 50 mm, rigid support.

Supporting slab	Breaking strength at 20 °C [kN]	Deformation in case of breakage ¹⁾ [mm]
1	> 400 ¹⁾	12,4
2	> 400 ¹⁾	10,8
3	> 400 ¹⁾	12,7
Mean value	> 400	12,0

¹⁾ No breakage when reaching the maximum machine load of 400 kN.

The associated strength deformation diagram is shown below.

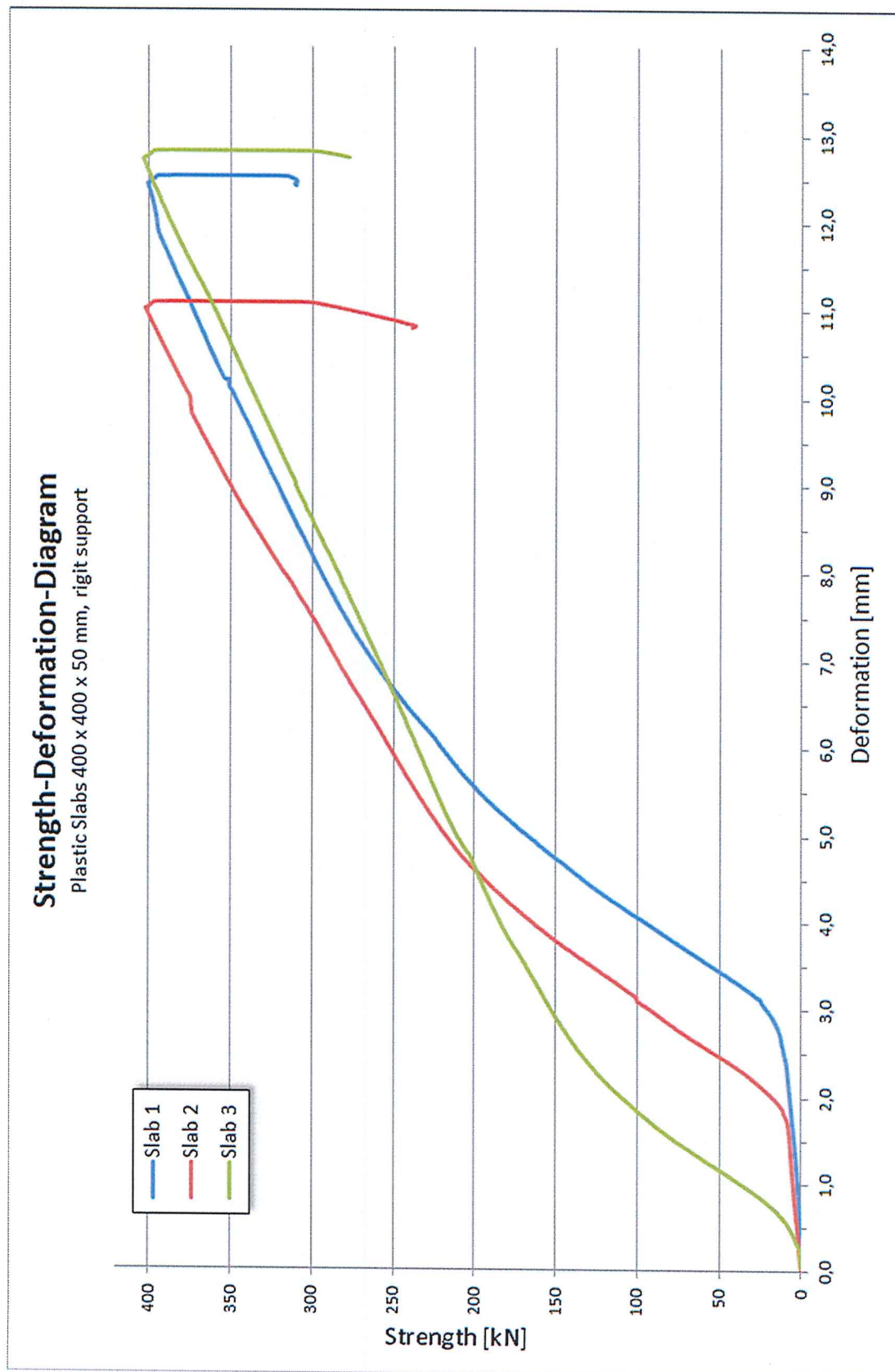


Figure 2: Strength deformation diagram

The following figure exemplary shows the deformation resp. breakage pattern of the slabs after the end of the test.



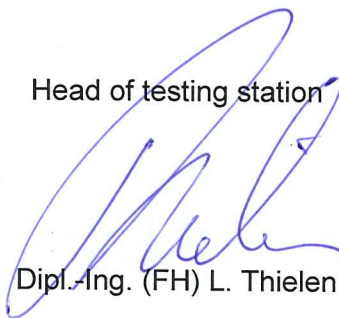
Figure 3: Plastic slab, thickness 50 mm, following the test on rigid support. Clearly visible: indentation of the load slab in the middle of the tested piece.

V Summary

When testing the slabs on a rigid support and given a breaking strength of 400 kN there was no breakage. At the same time, a plastic deformation of the slabs of 14.4 mm, 10.8 mm and 12.7 mm was measured.

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