

**Test report
MK5801014**

Ordered by: Ritter GmbH
Kaufbeurer Straße 55
86830 Schwabmünchen

Date of order: 27.07.1998

Content of order: Compressive tests on grass pavers
at a temperature of -40 °C

Test based on: DIN EN ISO 604 „Plastics-
Determination of compressive properties“

Test material: 5 samples of honeycomb grass pavers „Type II“
5 samples of honeycomb grass pavers „Type III“
Dimensions 502 mm x 387 mm x 45 mm

This test report contains 3 page of text.

LGA-N3\MK\5801014E.DOC / Page 1 of 3

L G A • Materialprüfungsamt • Tillystraße 2 • D-90431 Nürnberg
Tel. (09 11) 65 5- 53 50 • Fax (09 11) 65 5- 53 09

For each publication - even in
abridgement or extracts - the
agreement of the LGA is required.

MK5801014

1 Content of order

On 27th of July 1998 the MPA (Materialprüfungsamt) of the LGA (Landesgewerbeanstalt Bayern) was charged by Fa. Ritter GmbH, Schwabmünchen, to determine the compressive properties of the honeycomb grass pavers delivered, based on the DIN EN ISO 604 at a temperature of -40°C.

2 Tests performed and test results

Compressive tests were carried out on the specimen by compressing them between two parallel steel plates until the breaking point.

Because of the dimensions of the grass pavers it was impossible to temper the entire plates.

Therefore there were taken smaller specimens from the entire plates, their form and dimension was equal to 3 honeycombs (=small specimen).

After storing them at room temperature (RT 23°C ± 2°C) resp. at -40°C they were compressed until break.

The entire plate was also stored at RT and compressed until break.

Results of the compressive tests

type/ specimen-nr.	small specimen (three honeycombs) maximum force, F _{max} in kN		grass paver plate (original size) maximum force, F _{max} in kN
	stored at RT 23 °C	stored at -40 °C	stored at RT 23 °C
II/1	18,2	40,7	230
II/2	21,9	41,7	245
II/3	19,4	39,2	238
mean value \bar{x}	19,8	40,5	238
III/1	16,4	37,9	210
III/2	18,3	37,7	210
III/3	18,3	39,8	210
mean value \bar{x}	17,7	38,5	210

The compressive strength of the entire plate at a temperature of -40°C was calculated by the ratio of the maximum forces of the small specimen measured at RT (23°C) and at -40°C.

MK5801014

Calculation of the compressive strength:

	type	
	II	III
area of the plate A in m ²	0,194	0,194
maximum force F _{max} in kN	238	210
compressive strength σ _{M, (RT)} in kN/m ²	1227	1082
ratio $\frac{F_{\max -40\text{ °C}}}{F_{\max RT\ 23\text{ °C}}}$	2,05	2,17
calculated compressive strength σ _{M, -40 °C} in kN/m ²	2515	2348

Result:

The compressive strength of the grass pavers at -40°C amounts to >1000 kN/m² under a uniform distribution of the load.

Remark:

The test results only apply to the samples described above.

Nürnberg, den 08-17-1998
MK Wf/KI

Materialprüfungsamt
Kunststofftechnologie
i.A.


Dipl.-Ing. HÖSCH



Sachbearbeiter:


WÜRFEL