

Test Certificate

Auftraggeber

Moeding
Keramikfassaden GmbH
Ludwig-Girnghuber-Straße 1
84163 Marklkofen

Auftrags-Nr.:

M 2405 / 2016
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Durch die DAKKS nach DIN EN ISO/IEC 17025 akkreditiertes Prüflaboratorium. Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren

Quality control number	:	S 81 / 2016
Order date	:	July 20, 2016
Content of Order	:	Testing according to technical specification Z-33.1-531
Amount and type of samples	:	15 pcs. facade tile ALPHATON® generation 06 colour quartzgray Standard, dimensions 300 x 700 mm (300 AT-R)
Produced at	:	Germany, Bavaria
Production mark	:	Kod-Nr.: 1126
Sample identification	:	MOEDING® ALPHATON® Z-33.1-531 * 1126 * 300-R*15* 3/50 * MOEDING*KERAMIKFASSADEN*GMBH*121624
Delivery date	:	August 2, 2016
Date of testing	:	November to December, 2016
Testing laboratory	:	Kiwa GmbH, NL MPA Bautest, Munich Lab
Tested by	:	Mr. Beyer
Samples taken by	:	Güteschutz Ziegel, Mr. Keller
Samples taken from	:	Storage yard stack, plant Marklkofen
Sign of quality control	:	Quality Güteschutz stamp and quality control number S 81 / 2016 1 - 15

Garching, 20 December 2016
be / fr

i.V.

Dipl.-Ing. (FH) Matthias Franzmann
- Department head-



i.A.

Gerrit Beyer
- Building materials testing -

The test certificate consists of 6 pages.

All results relate only to the items tested. The test material has been used up completely.

This test certificate may only be published unabridged form.

Interpretations and opinions of the testing laboratory have been marked in italic scripts according to DIN EN ISO / IEC 17 025 mark 5.10.5.

1 General information

1.1 Surface structure and colour

The tested samples are extruded tiles type ALPHATON® generation 06 (300 x 700 mm) in quartzgray Standard colour. The surface is free of any defects.

2 Geometric characteristics

2.1 Dimensions according to DIN EN 1024

Sample no.	Length [mm]	Height (mirror) [mm]	Notch [mm]	Thickness [mm]
6	692	288	290	30
7	692	288	290	30
8	692	287	290	30
9	692	288	290	30
10	692	288	290	30
Average value	692	288	290	30
Nominal dimension	692	288	290	30
Tolerance allowed [%]	-	± 1	-	-
Tolerance allowed [mm]	± 1	-	-2 +1	± 2
Demands met by samples	yes	yes	yes	yes

2.2 Wing bending, Angle difference

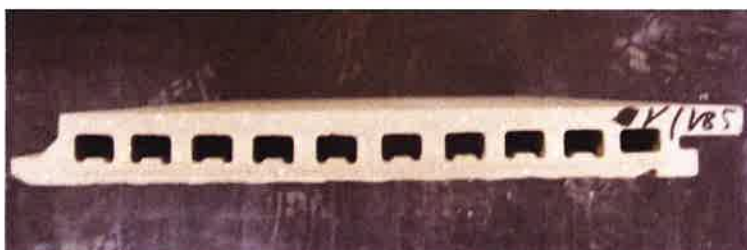
Test of wing bending according to DIN EN 1024

Test of angle difference according to BAUTEST SA 2/236

Sample no.	Wing bending [%]	Angle difference [%]
6	0,18	0,2
7	0,10	0,3
8	0,09	0,2
9	0,16	0,2
10	0,25	0,1
Average value	0,16	0,2
Max. tolerance allowed	1,5	$\leq 0,3$ *
Demands met by samples	yes	yes

* factory requirement

2.3 Pictures of sample



3 Physical and mechanical attributes / characteristics

3.1 Deflection load capacity

For the determination of the deflection load capacity, the samples had been tested by performing the three point bending test with 500 mm span.

Sample no.	Deflection load capacity [kNm/m]	Comments
7	1,67	-
8	1,54	-
9	1,50	-
10	1,67	-
1*	1,71	-
2*	1,67	-
3*	1,63	-
Average value	1,63	rounded on 0,01 kNm/m
Nominal average value	$\geq 1,20$	
Nominal single value	$\geq 1,05$	
Specification passed	yes	

* According to the client's specification, 3 samples had been dehumidified for testing of freeze resistance before performing the test on deflection load capacity.

3.2 Ceramic body density

Test of ceramic body density according to DIN EN 772-13.

Sample no.	Ceramic body density (oven dry density) g/cm ³	Comments
3	2,21	-
4	2,21	-
5	2,22	-
Average value	2,21	
Nominal average value	≥ 1,80	
Nominal single value	≥ 1,75	
Demands met by samples	yes	

3.3 Frost resistance according to DIN EN 539-2, method E (European single test method)

3.3.1 Selection and preparation of specimen

Testing of frost resistance according to DIN EN 539-2

As stated by the applicant, only 3 of a total of 10 specimen have been tested on frost resistance after water absorption.

Sample no.	Water absorption W_u			Test lot
	m_{tr} [g]	$m_{n,u}$ [g]	W_u [%]	
1	9785	10140	3,6	X
2	9791	10157	3,7	X
3	9785	10148	3,7	X
Average value			3,7	

3.3.2 Test results

Test results after 150 freeze / thaw cycles according to DIN EN 539-2, method E (action of frost on top of specimen).

Period of icing: 40 minutes

Sample no.	Quantity of freeze / thaw cycles (FTW)	Changes as result of freeze / thaw cycles after		
		30 FTW power stage 1	90 FTW power stage 2	150 FTW power stage 3
1	150	no changes	no changes	no changes
2	150	no changes	no changes	no changes
3	150	no changes	no changes	no changes
Demands met by samples		yes		

4 Summary

The tested samples of facade tiles ALPHATON® generation 06 passed the requirements according to technical specification Z-33.1-531.

The tested samples of facade tiles ALPHATON® generation 06 passed the requirements for resistance against freeze / thaw cycles according to DIN EN 539-2, according to power level 3, testing method E.

Garching, 20 December 2016