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AB 054

TEST REPORT No. 127.W.09.AK
/TRANSLATION/

Subject: Preliminary type examination of thermally toughened glass

Orderer:	**Szkłoland Sp. z o.o.**
(name, address,	Gutkowo 52B 11-041 Olsztyn
date of order)	(Fax of September 8, 2009)

Date of samples delivery:	28.09.2009
Date of starting the tests:	02.10.2009
Date of ending the tests:	14.10.2009

Test performed by: M. Sc. Eng. Zofia Pollak

Distribution list:
1 copy Orderer,
1 copy Research Laboratory

Acting manager
Department of Glass Technology

M. Sc. Eng. Sebastian Sacha

Cracow, dated 14.10.2009
Translation Date 10.05.2024

1. Description and identification of the test subject

The subject of the research was thermally toughened safety glass manufactured by Szkłoland sp. o.o Zakład Obróbki Szkła z Olsztyna. The client provided unmarked samples for testing, which were assigned the numbers 127.W.09/sequential number for research purposes. In the further content of the report, for convenience, the part of the marking corresponding to the report number is omitted.
The manufacturer submitted for testing:
- 15 samples with a thickness of 3 mm, which were assigned numbers 1-9 and 64-69,
- 9 samples with a thickness of 4 mm, which were assigned numbers 10-18,
- 6 samples with a thickness of 5 mm, which were assigned numbers 19-24,
- 9 samples with a thickness of 6 mm, which were assigned numbers 25-33,
- 6 samples with a thickness of 10 mm, which were assigned numbers 34-39,
- 9 samples with a thickness of 12 mm, which were assigned numbers 40-48,
- 9 samples with a thickness of 15 mm, which were assigned numbers 49-57,

all with dimensions of 360 x 1100 mm
- 9 samples with dimensions 920 x 1840 mm and thickness of 8 mm which were assigned numbers 58-63

Samples numbered 1-7, 10-16, 19-23, 25-31, 34-38, 40-46, 49-55, 58-62 and 64-68 were designated for testing, while the remaining samples were left as "witness" samples.

2. The proceedings

2.1. Test scope

The scope of research included:
- testing of the mechanical bending strength of glass,
- assessment of fragmentation.

2.2. Test method

2.2.1 Testing the mechanical bending strength of glass

This test was performed according to point 9.4 of PN-EN 12150-1, using the methodology contained in point 7 of PN-EN 1288-3 for 10 glass samples numbered 6-7, 15-16, 30-31, 45-46, 54-55. The expanded measurement uncertainty, with coverage factor k=2, at the 95% confidence level, was 20.6%.

2.2.2 Assessment of fragmentation

This test was carried out in accordance with point 8 of PN-EN 12150-1 for 35 glass samples numbered 1-5, 10-14, 19-23, 25-29, 34-38, 40-44, 49-53, 58-62 and point 5 of PN-EN 14 428 for 5 glass samples with numbers 64-68.
The expanded measurement uncertainty, with coverage factor k=2, at the 95% confidence level, was 2.1%.

3. Test results

3.1 Testing the mechanical bending strength of glass

The test results are presented in table 1

Table 1

Sample number	Average actual thickness of the glass	Mechanical strength (N/mm2)	
		obtained	required
6	3.01	254.5	120
7	2.86	210.2	120
15	3.81	183.3	120
16	3.79	202.1	120
30	5.82	163.1	120
31	5.83	184.6	120
45	11.79	176.6	120
46	11.79	155.0	120
54	14.93	167.2	120
55	15.00	173.0	120

3.2 Assessment of fragmentation

The test results are presented in table 2

Table 2

Sample number	Nominal glass thickness	Number of fragments in a 50 mm square containing the smallest number (pcs.)		Presence of fragments > 100 mm long
		obtained	required	
1	3	21	15	Absence
2	3	2	15	Absence
3	3	1.5	15	Absence
4	3	2.5	15	Absence
5	3	1.5	15	Absence
10	4	132	40	Absence
11	4	102	40	Absence
12	4	143	40	Absence
13	4	136	40	Absence
14	4	141	40	Absence
19	5	98	40	Absence
20	5	134	40	Absence
21	5	85	40	Absence
22	5	71	40	Absence
23	5	76	40	Absence
25	6	62	40	Absence
26	6	82	40	Absence
27	6	63	40	Absence
28	6	78	40	Absence
29	6	75	40	Absence
34	10	93	40	Absence
35	10	95.5	40	Absence
36	10	95	40	Absence
37	10	96.5	40	Absence
38	10	102	40	Absence
40	12	43	40	Absence
41	12	52	40	Absence
42	12	53	40	Absence

43	12	50	40	Absence
44	12	46	40	Absence
49	15	42	30	Absence
50	15	50	30	Absence
51	15	39.5	30	Absence
52	15	33	30	Absence
53	15	36	30	Absence
58	8	76	40	Absence
59	8	92	40	Absence
60	8	79	40	Absence
61	8	102	40	Absence
62	8	83.5	40	Absence
Repeat examination				
64	3	26	15	Absence
65	3	20.5	15	Absence
66	3	28	15	Absence
67	3	19.5	15	Absence
68	3	26	15	Absence

Acting manager
Department of Glass Technology

M. Sc. Eng. Zofia Pollak
/signature of the person drawing up the report/

M. Sc. Eng. Sebastian Sacha
/ signature of the person authorizing test report /

Lider Grupy Badawczej
Szkło i Akustyka
dr inż. Magda Kosmal
/compatibility with the original/

- E N D O F R E P O R T -

Reservations:
1. The test results refer only to the tested samples.
2. Without consent of the Glass and Acoustics Research Group on paper, the report cannot be duplicated otherwise than as a whole.
3. Deadline for the submission of complaints must not exceed 1 month from the date of the test report drawing up.