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Test report

Test report relating to a glass product according to European standard EN12150-1, fragmentation and mechanical strength, concerning the product marked as: Glass Services Softcoat, manufactured by: Glass Services Ltd

Report number	12134R-89201078
Date	1 June 2012
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Project number	89201078
Project name	Glass Services
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1 Introduction

1.1 Purpose

The tests have been performed in order to establish whether or not the product meets the requirements of the European standard EN 12150-1 [1].

1.2 Description of the samples

General

Name of the manufacturer	Glass Services
Address of the manufacturer	Wotton Road Ashford Kent, TN23 6LN
Production plant of the samples	Wotton Road Ashford Kent, TN23 6LN
Production date	December 2011
Sampling date	December 2011
The product was marked as	Glass Services
Dimensions of the samples	1100 x 360 mm

Specific

Kind of glass	Thermally toughened safety glass
Nominal thickness	4, 6 mm
Number of samples, fragmentaton	5 per thickness
Number of samples, 4-point bending	≥2 per thickness, in total minimum 10
Edge work according to EN 12150-1 § 7.2	Arrissed edge

1.3 Sampling procedure

The test house, acting as notified test body, has had no influence on the selection of the samples.

1.4 Application

The request for testing was submitted by the manufacturer on December 2011. Assignment Form number: 11.A328.

1.5 Method of testing

All applicable tests have been performed according to the European standards EN 12150-1 [1] and EN 1288-3 [3].

1.6 Put out to contract

No tests were performed at third parties.

1.7 Privacy statement

Due to privacy reasons, the names of involved personnel that executed the tests, are not disclosed in the report. However, this information is available on internal work sheets, test forms etc. in the project file.

1.8 Notifications and accreditations

TÜV Rheinland Nederland B.V. has been notified by the Dutch Ministry of Infrastructure and the Environment as Notified Test Body (number 1750) and Notified Certification Body (number 0336) for the

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European Construction Products Directive 89/106/EEC.

TÜV Rheinland Nederland B.V. has been accredited by the Dutch Accreditation Council (RvA) as ISO 17025 Test Laboratory (accreditation number L 484) and EN 45011 Certification Body (accreditation number C058).

TÜV Rheinland Nederland B.V. has been accredited as Technical Service (Laboratory) by RDW competent Administrative Department (Approval Authority) for the Netherlands to grant approvals as mentioned in Directive 70/156/etc. and the 1958 Agreement of the Economic Commission for Europe of the United Nations (UN-ECE) for glass as used in the automotive sector: ECE Regulation 43, safety glazing; EC Directive 92/22, Safety glass; EC Directive 2009/144, Glazing cat. T (accreditation number RDW-99050043 01).

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2 Test results

Test results after performing all applicable tests according to § 8, Fragmentation when tested according to EN 12150-1 [1] and § 9.4, Mechanical strength of the European standard EN 12150-1 [1] when tested according to EN 1288-3 [3].

Requirements:

EN 12150-1:2000 [1] § 8.5	**prEN 12150-1:2007 [2] § 8.5**
3mm float: minimal 15 particles	
4 mm up to and including 12 mm float: minimal 40 particles	3 mm up to and including 12 mm float: minimal 40 particles
15 mm up to and including 19 mm float: minimal 30 particles	15 mm up to and including 25 mm float: minimal 30 particles

EN 12150-1:2000 [1] § 9.4	
Type of glass	**Minimum values mechanical strength (N/mm^2)**
Float: Clear, Tinted and Coated	120
Enamelled float	75
Patterned glass and drawn sheet	90

Remark

The published and official version of standard EN 12150-1 is from June 2000 but the Group of Notified Bodies has decided to regard the prEN version of 2007 also as a valid document. If the product also fulfils the requirements of the prEN version of EN 12150-1, than the client knows that his product also is in conformity with that possible future standard.

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Test results Fragmentation test according to EN 12150-1 [1]:

Limit values table: Fragmentation test EN12150	Projectnumber:	8920178
	Test date:	5-1-2012
Thickness [mm]	4	6
Minimum allowed number of particle within the gauge (25 cm^2)	40	40
Maximum allowed length of het longest particle after fragmentation (in mm)	100	100
Test Specimen 1	"4"	"6"
Number of fragments within the gauge (25 cm^2)	74	81
length of the longest particle in the body of the test specimen after fragm.	24	17
Assesment between 4 and 5 minutes [Y/N]	Y	Y
Test Specimen 2	"4"	"6"
Number of fragments within the gauge (25 cm^2)	79	70
length of the longest particle in the body of the test specimen after fragm.	22	18
Assesment between 4 and 5 minutes [Y/N]	Y	Y
Test Specimen 3	"4"	"6"
Number of fragments within the gauge (25 cm^2)	80	81
length of the longest particle in the body of the test specimen after fragm.	18	19
Assesment between 4 and 5 minutes [Y/N]	Y	Y
Test Specimen 4	"4"	"6"
Number of fragments within the gauge (25 cm^2)	81	75
length of the longest particle in the body of the test specimen after fragm.	17	19
Assesment between 4 and 5 minutes [Y/N]	Y	Y
Test Specimen 5	"4"	"6"
Number of fragments within the gauge (25 cm^2)	77	77
length of the longest particle in the body of the test specimen after fragm.	20	17
Assesment between 4 and 5 minutes [Y/N]	Y	Y
Evaluation of Conformity	"4"	"6"
The mimimum required number of fragments is not exceeded	OK	OK
The maximum allowed length of het longest particle is not exceeded	OK	OK

Test results Four point bending test according to EN 1288-3 [3]:

Sample number	facing upwards ↑ or downwards ↓	Thickness (mm)	Length (mm)	Width (mm)	Max. Force (N)	Mech.strength (N/mm^2)	Breakage between rollers [Yes/No]	Time to breakage (s)
1	↑	3,85	1100	360	709	164,2	Yes	76
2	↑	3,87	1100	360	670	154,3	Yes	72
3	↓	3,86	1100	360	728	167,4	Yes	78
4	↓	3,86	1100	360	740	170,3	Yes	80
5	↓	3,86	1100	360	711	163,8	Yes	77
6	↑	5,91	1100	360	1523	148,6	Yes	69
7	↑	5,91	1100	360	1537	149,9	Yes	70
8	↓	5,90	1100	360	1627	158,9	Yes	74
9	↓	5,88	1100	360	1605	157,7	Yes	74
10	↓	5,88	1100	360	1525	150,4	Yes	70

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3 Conclusion

The tested glass product, marked by the client or manufacturer as Glass Services Softcoat manufactured by: Glass Services Ltd, meets the applicable requirements concerning § 8, Fragmentation and § 9.4, Mechanical strength as stated in the European standard EN 12150-1 [1] when tested according to EN 12150-1 [1] and EN 1288-3 [3].

The test results exclusively relate to the tested objects.

Remark 1

When and if changes are made in production method and/or equipment, assessment according to this standard shall be reconsidered and re-tests shall be performed when the changes can lead to different specifications of the glass. The decision and responsibility lies at the manufacturer.

Remark 2

If no reference of the product description was supplied by the manufacturer, than that document shall be added to this test report by the manufacturer. It was to the manufacturer's responsibility that the samples delivered for initial type test are representative to the production and deviations from perfection were included in the delivered test samples.

Remark 3

The tested glass product, marked by the client or manufacturer as Glass Services Softcoat manufactured by: Glass Services Ltd, also meets the applicable requirements concerning § 9.4, Mechanical strength as stated in the draft European standard prEN 12150-1:2007 [2], when tested according to EN 12150-1 [1] and EN 1288-3 [3].

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4 References

1 European standard EN 12150-1:2000 (E),
Glass in building – Thermally toughened soda lime silicate safety glass – Part 1: Definition and description,
European Committee for Standardization, June 2000.

2 Provisional (draft) European standard prEN 12150-1:2007 (E),
Glass in building – Thermally toughened soda lime silicate safety glass – Part 1: Definition and description,
European Committee of Standardization, 2007.

3 European standard EN 1288-3:2000 (E),
Glass in building – Determination of the bending strength of glass – Part 3: Test with specimen supported at two points (four point bending),
European Committee for Standardization, June 2000.

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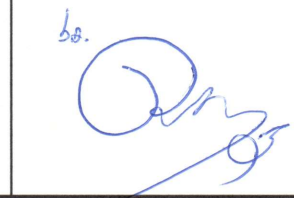
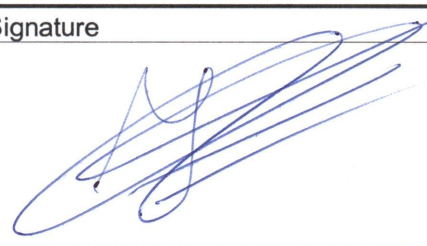
5 Signatures

Author	Signature
Mr. M.J.R. Luppens Specialist	
Peer review	Signature
Mr. T.R. Cruijff Specialist	
Approved by	Signature
Mr. A.J. Piers, B.Sc. Manager Industrial Services	

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