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TNO report

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Radiation test on 2 types of DuPont interlayers in glass according EN-ISO-12543

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Contents

1 Introduction

DuPont B.V. has commissioned TNO TPD, section Glass Products with the assessment of the performance of laminated glass according to EN-ISO-12543 (radiation test only). The tests consisted of the determination of the change in light transmission before and after ageing of the laminated glass in the radiation test as described in EN-ISO-12453. The heat and moisture exposure test were not tested.

Note: The manufacturer supplied no system description but the system description shall be completed and added to this initial type test report by the manufacturer. It was the manufacturer's responsibility that the samples delivered for initial type test are representative for the production quality and that normal production deviations were included in the delivered test samples. If any deviation of applied materials/process/machines is done (and declared to be a so-called major change), re-type testing or additional tests may be required. The responsibility for this decision lies with the manufacturer. The formal system description, which should be a part of the product documentation, is the reference for applying the above described rules.

The following paragraphs describe the test, the results and the conclusions.

2 Experimental

2.1 Delivered samples and materials for initial type testing

The following samples were delivered for testing

- 6 samples consisting of 4 mm float 1 layer of Butacite® B-51PW NC-10 interlayer and 4 mm float
- 6 samples consisting of 4 mm float 2 layers of Butacite® B-52PW NC-10 interlayer and 4 mm float

The manufacturer declared that the glass samples were cut before lamination. No edge grinding after cutting was performed.

2.2 Measurements

Three samples were randomly selected for initial measurement of the light transmission according EN410. After this initial characterization the samples were aged in an array of 300W Ultra-Vitalux (UV-type) bulbs.

After 2000 hours of exposure the samples were measured again on light transmission properties. The samples were also inspected on bubbles, delamination or any other visual defect.

2.3 Results

The following table shows the results (light transmittance acc. EN410) of each individual tested sample.

Butacite® B-52PW NC-10				
Sample	Before	After	Difference	Visual
1	87.5 %	87.5 %	< 0.1 %	No bubbles, no delamination or other defects observed
2	87.5 %	87.6 %	0.1 %	No bubbles, no delamination or other defects observed
3	87.5 %	87.5 %	< 0.1 %	No bubbles, no delamination or other defects observed

Butacite® B-52PW NC-10				
Sample	Before	After	Difference	Visual
1	87.6 %	87.7 %	0.1 %	No bubbles, no delamination or other defects observed
2	87.5 %	87.7 %	0.2 %	No bubbles, no delamination or other defects observed
3	87.7 %	87.6 %	0.1 %	No bubbles, no delamination or other defects observed

2.4 Evaluation

The change in light transmission is reported and valued according the limit values of the EN-ISO-12543. The conclusion is that the differences are within the limit values of the EN-ISO-12543. The tested samples and configuration **pass** the requirements related to the radiation test.

3 Conclusions

The following conclusions are made:

The laminated glasses with the following interlayer materials;

- Clear float - **1 layer of Butacite® B-51PW NC-10 interlayer** – clear float.
- Clear float - **2 layers of Butacite® B-52PW NC-10 interlayer** - clear float

as manufactured in the configuration of the tested samples, are within the limits of the initial type test as described in the EN-ISO-12543 for the radiation test (part 4).

Note: When and if changes are made in production method, materials, raw-components and/or equipment, assessment according the EN-ISO-12543 shall be reconsidered and re-test shall be initiated when the changes could lead to different optical and durability responses. The decision and responsibility for this decision lies at the producer. The test specimens used in this report were delivered by DuPont and are not linked to a specific declared production line.

4 Authorisation

TNO TPD Eindhoven, 3 April 2002

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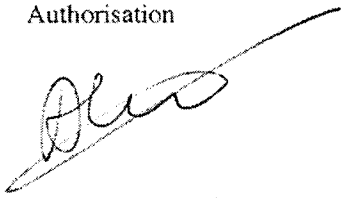
Authorisation



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