Test object : Material samples
Type : Altuglas EI 25
Customer : Atoglas Europe

Test Report no. 84SG0394-01

Scope	: Test of material samples (plastic material)
Type	: Altuglas EI 25
Customer	: Atoglas Europe
Preparation	: TÜV Kraftfahrt GmbH Institute for Traffic Safety Type Approval Vehicles/Vehicle Components Am Grauen Stein D - 51105 Köln (Poll)

- Documentation of test results only -

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Type : Altuglas EI 25
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0. General informations

: Upon customers request tests on material samples were conducted to determine if the samples meet the requirements specified under item 4.2 of this test report.

1. Name and address of the customer

: Atoglas Europe
"Le Michelet" - 6, Cours Michelet
F-92064 Paris La Défense 10

2. Description of the test object

2.1 Test object : flat colourless our coloured test samples in dimension 300 mm x 300 mm as determined by the test requirement; DIN 52306/03.90 resp. DIN 52307/03.90.

2.2 Details

2.2.1 Material type : EI 25

2.2.2 Commercial name : Altuglas

2.2.3 Manufacturer : Atofina Italia
Via Pregnana, 63
I-20017 Rho (Mi)

2.2.4 Technical description : Polymethylmethacrylate (PMMA)

2.2.5 Approved nominal thickness, thickness range : 3,0 mm ± 5 %, colourless and coloured version, 3,0 mm up to 12,0 mm

Note: This test report covers all versions of the approved material type with larger sample thickness refering to the approved nominal thicknesses.

2.2.6 Manufacturing method : extrusion

2.2.7 Colour :

	colour	reference code
a)	colourless	272 10000
b)	dark grey	272 16018

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3. Material application : Plastic material for use in vehicle construction

4. Test requirements

4.1 General informations

4.1.1 Date of test(s) : 21.07.1998, 28.03.2003

4.1.2 Test location : D-Cologne

4.1.3 Note : The test result refers to the test objects mentioned in section 2. of this technical report only.
The test laboratory is accredited for the approval of motorcycle fairings by the accreditation body of the Kraftfahrt-Bundesamt, Federal Republic of Germany, with DAR-registration-no. KBA-P 00010-96.

4.2 Test requirement(s) : Test in reference to
- TA 29, StVZO
- DIN 52306/03.90; Ball drop test
- DIN 52307/03.90; Dart drop test
- VdTÜV-Leaflet no. 736/01.77; Motorcycle fairings

4.3 Test facility : The tests were performed on test facilities that fulfill the specifications defined by the applicable test requirement.

4.4 Test details

The drop tests for determination of the splinter resistance were performed at test sample temperatures of (+ 23 ± 2)°C, ambient temperature, and (-20 +0/-2)°C, low temperature.

Ball drop tests

During testing at ambient temperature the dropheight was increased until 4,0 m without causing crack, penetration or breakage into pieces of the individual test sample.
During testing at low temperature the dropheight was increased, starting at the minimum dropheight* of 2,0 m, until 4,0 m without causing crack, penetration or breakage into pieces of the individual test sample.
During the ball drop test at minimum dropheight any damage of the material samples was determined. *The minimum dropheight refers to the test sample thickness of 3,0 mm in the impact zone (Ref.: TA 29, StVZO, section 3.6.8.2.2.2).

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4.4 Test details (cont.)

Dart drop tests

During testing at ambient temperature the dropheight was increased, starting at the dropheight of 0,5 m, until 7,0 m without causing crack, penetration or breakage into pieces of the individual test sample.
During testing at low temperature the dropheight was increased, starting at the minimum dropheight of 2,0 m, until 4,0 m without causing crack, penetration or breakage into pieces of the individual test sample.

5. Confirmation

The test objects mentioned in section 2. of this test report were tested regarding their splintering resistance.
Regarding the tests performed and documented in this test report the test objects fulfill the applicable test requirements for hard plastic materials for use in vehicle construction.

6. Attachments : n/a

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July 24th, 2003
ps/pc

Dipl.-Ing. P. Scheele