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Report No. 41 0001557

1st issue

Rendered to

General Electric Plastic bv

NL-4600 AC Bergen op Zoom

Tests of hart-coated green (reference code 315063) safety plastics (Polycarbonate "Lexan Margard MR5E") in a thickness of 5 mm to 8 mm.

Markings of Test Samples

No markings.

The test certificate extends over 6 pages.

Introduction

This report contains the results of examination and test of the above automotive safety glazing materials to demonstrate compliance with the applicable requirements of the American National Standard Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways, ANSI Z26.1-1977, Z26.1a-1980 and Z26.1-1983.

Summary

The following is a summary of the results of tests which were performed in accordance with the USA FMVSS 205 (ref. standard ANSI Z26.1-1977, Z26.1a-1980 and Z26.1-1983).

Test No.	T e s t	Remarks
2	Luminous Transmittance	complies
10	Impact, Dart	complies
13	Impact, Ball	complies
16	Weathering	complies
17	Abrasion Resistance	complies
19	Chemical Resistance	complies
20	Chemical Resistance	complies
21	Dimensional Stability	complies
22	Flexibility	complies
24	Flammability	complies

Authorization

Letter from General Electric Plastic bv, NL-4600 AC Bergen op Zoom, The Netherlands

dated May 23, 2002.

Material Submitted

Seventeen	12-	x	12-inch (305- x 305-mm),
three	2.5-	x	8.5-inch (64- x 216-mm),
three	4-	x	4-inch (102- x 102-mm),
sixteen	1-	x	7-inch (25- x 178-mm),
three	2.5-	x	6-inch (13- x 152-mm),
two	2.5-	x	10-inch (64- x 254-mm)

flat specimens of the mentioned material in a thickness of 5 mm and 8 mm

and two 6- x 6- x 0.2-inch (152- x 152- x 5.0-mm).

These samples were received July 22, 2002.

Tests and Results of Tests

Test No. 2 - Luminous Transmittance

Three 2.5- x 8.5-inch (64- x 216-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results

Specimen	Percent Light Transmittance
Thickness 5 mm	
1	74.0
2	73.9
3	74.0
Thickness 8 mm	
1	74.5
2	74.4
3	74.7

Test No. 10 - Impact, Dart

Five 12- x 12-inch (305- x 305-mm) flat specimens of each thickness were tested according to the above mentioned Safety Code.

Results

No specimen in the thickness 5 mm and 8 mm broke into separate large pieces.

Test No. 13 - Impact, Ball

Twelve 12- x 12-inch (305- x 305-mm) flat specimens of each thickness were tested according to the above mentioned Safety Code.

Results

No specimen in the thickness 5 mm and 8 mm broke into separate large pieces.
No specimen of the remaining specimens in the thickness 5 mm and 8 mm developed a fracture that could be described as a hole through the body of the specimen.

Test No. 16 - Weathering

Three 2.5- x 8.5-inch (64- x 216-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results:

Specimen	Percent Light Transmittance	
	before weathering	after weathering
Thickness 5 mm		
1	74.0	74.7
2	73.9	74.3
3	74.0	74.5
Thickness 8 mm		
1	74.5	74.7
2	74.4	74.8
3	74.7	74.4

The decrease in regular (parallel) luminous transmission of the irradiated specimens did not exceed 5%. No defects other than discoloration developed.

Test No. 17 - Abrasion Resistance

Three 4- x 4-inch (102- x 102-mm) flat specimens of each thickness were tested according to the above mentioned Safety Code.

Results:

Specimen No.	Percent			
	Haze of Track	Haze of Glass	Net Haze	Arithmetic Mean
Thickness 5 mm				
1	3.7	0.8	2.9	
2	3.8	0.9	2.9	3.2
3	4.2	0.4	3.8	
Thickness 8 mm				
1	3.8	1.0	2.8	
2	4.1	0.4	3.7	3.3
3	4.1	0.6	3.5	

The arithmetic mean of the percentage of light scattered was less than 15 percent.

Test No. 19 - Chemical Resistance (Nonstressed)

Eight 1- x 7-inch (25- x 178-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results

Test Chemicals	Remarks
Thickness 5 mm	
1 % solution of a nonabrasive soap Kerosene Alcohol Motor car gasoline	No tackiness, crazing or apparent loss of transparency in the samples
Thickness 8 mm	
1 % solution of a nonabrasive soap Kerosene Alcohol Motor car gasoline	No tackiness, crazing or apparent loss of transparency in the samples

Test No. 20 - Chemical Resistance (Stressed)

Eight 1- x 7-inch (25- x 178-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results

Test Chemicals	Remarks
Thickness 5 mm	
1 % solution of a nonabrasive soap Kerosene Alcohol Motor car gasoline	No tackiness, crazing or apparent loss of transparency in the samples
Thickness 8 mm	
1 % solution of a nonabrasive soap Kerosene Alcohol Motor car gasoline	No tackiness, crazing or apparent loss of transparency in the samples

Test No. 21 - Dimensional Stability

Two 6- x 6- x 0.2-inch (152- x 152- x 5.0-mm) specimens were tested according to the above mentioned Safety Code.

Results

Test No. 22 - Flexibility

Two 2.5- x 10-inch (64- x 254-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results

The plastic (thickness 5 mm and 8 mm) shows no cracks, wrinkles, or surface impairment during or after bending.

Test No. 24 - Flammability

Three 6- x 0.5-inch (152- x 13-mm) specimens of each thickness were tested according to the above mentioned Safety Code.

Results

Specimen No.	Burning rate inch/min	mm/s
Thickness 5 mm		
1 2 3	All specimens self-extinguishing	
Thickness 8 mm		
1 2 3	All specimens self-extinguishing	

The horizontal burning rate did not exceed 3.5 inch/min (1.48 mm/s).

Dortmund, November 26, 2002
Report approved by

Dr. Duemmler

Materialprüfungsamt MPA NRW 16 Nordrhein-Westfalen