

REPORT INTERTEK TESTING SERVICES

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CORTLAND, NEW YORK 13045

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ANSI Z97.1 AND 16CFR 1201 CAT 11

RENDERED TO

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Introduction

This report presents the test methods and results of tests performed on Tempered Architectural Glazing Materials. The tests were conducted in accordance with the American National Standard: "Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings", ANSI Z97.1-1984, Section 5.1.

ANSI Z97.1-1984 Test Methods and Results

5.1 Impact Test

specimens were tested as submitted, except that any masking or protective material was removed prior to test. The samples were separated and allowed to rest for at least four hours at temperatures between 70 deg. and 85 deg. F to insure uniform temperature throughout each specimen at the time of test.

Sample Description: The product which was submitted on behalf of UCB Chemicals Corp. by Galaxy Glass & mirror of 277 Fairfield Road, Fairfield, NJ. was identified by the client as being 2.7mm glass/0.031 interlayer of Uvekol S/2.7mm glass.

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ANSI Z97.1-1984 Test Methods and Results (Cont')

5.1.1 Apparatus

The specimen to be tested was mounted within a frame constructed in accordance with Figure 1 of the Standard, in a vertical position and retained with the edge clamps provided.

5.1.2 Procedure

The impact object (shot bag), constructed in accordance with Figure 2 of the Standard, was supported from an overhead support, so located that the impacting object, when at rest, will, at its maximum diameter, be no more than 1/2-inch from the center area portion of the specimen. (See Figure 1 of the Standard.)

Each specimen was struck once at the center with the impacting object, swinging in a pendulum arc from a drop height of 12-inches (Figure 1 of the Standard) above the horizontal centerline of the specimen. (The drop height was measured from the maximum diameter of the impacting object to the horizontal centerline of the specimen. The impacting object was stabilized before release.)

If no breakage occurred, the same specimen was again impacted, but with the drop height increased to 18, then 48-inches.

Specimen No. 1

Average Thickness: 0.316-inches

Dimensions: 34 x 76-inches

Results: Disintegration occurred at 12-inches with numerous cracks and fissures; no opening resulted from the impact.

Specimen No. 2

Average Thickness: 0.308-inches

Dimensions: 34 x 76-inches

Results: Disintegration occurred at 12-inches with numerous cracks and fissures; no opening resulted from the impact.

Specimen No. 3

Average Thickness: 0.317-inches

Dimensions: 34 x 76-inches

Results: Disintegration occurred at 12-inches with numerous cracks and fissures; no opening resulted from the impact.

Specimen No. 4

Average Thickness: 0.321-inches

Dimensions: 34 x 76-inches

Results: Disintegration occurred at 12-inches with numerous cracks and fissures; no opening resulted from the impact.

5.1.3 Interpretation of Results

The impact test is considered satisfactory if any one of the following safety criteria is met by each of the four specimens tested.

1. When breakage occurs at 12-inches, 18-inches, or 48-inches, numerous cracks and fissures may occur, but no shear or opening through which a 3-inch diameter sphere may be freely passed shall develop.
2. The specimen remains intact after any of the 3 impacts, though not necessarily remaining within the frame.
3. The specimen does not break.

5.2 Boil Test

This test is made to determine the probable effect of exposure to high temperature and humidity conditions for a long period of time.

5.2.1 Procedure

Three 12 x 12-inch flat specimens, as submitted, were immersed vertically on edge, in water at 150 degrees F for 3 minutes and then quickly transferred to, and similarly immersed in, boiling water. The specimens were kept in boiling water for 2 hours and then removed.

Results: No bubbles or other defects developed.

5.2.2 Interpretation of Results

The glass itself may crack in this test, but no bubbles or other defects shall develop more than 1/2-inch from the outer edge of the specimen, or from any cracks that may develop.

Any specimen in which the glass cracks, to an extent confusing the results, shall be discarded without prejudice, and another specimen shall be tested in its place.

Summary

Based on the results presented above, the specimens tested demonstrated their compliance to ANSI Z97.1-1984.

16 CFR 1201, Category II, Test Method and ResultsApparatus

The specimen to be tested was mounted within a frame constructed in accordance with Figure 1 of the Standard, in a vertical position and retained with the edge clamps provided.

Procedure

The impact object (shot bag), constructed in accordance with Figure 5 of the Standard, was supported from an overhead support, so located that the impacting object, when at rest, will, at its maximum diameter, be no more than 1/2-inch from the center area portion of the specimen. (See Figure 2 of the Standard).

The fifth specimen was struck once at the center with the impacting object, swinging in a pendulum arc from a drop height of 48 inches (Fig. 2 of the standard) above the horizontal centerline of the specimens.

Specimen No. 5

Average Thickness: 0.255-inches

Dimensions: 34 x 76-inches

Results: Disintegration occurred at 48-inches with numerous cracks and fissures; no opening resulted from the impact.

Specimen No. 6

Average Thickness: 0.255-inches

Dimensions: 34 x 76-inches

Results : Disintegration occurred at 48-inches with numerous cracks and fissures; no opening resulted from the impact.

A glazing material shall be judged to pass the impact test if the specimen tested meets any one of the following criteria:

1. When breakage occurs (numerous cracks and fissures may occur), no opening shall develop in the test specimen through which a 3-inch diameter solid steel sphere weighing 4 pounds passes when placed (not dropped) in the opening. For this criterion, the specimen after being impacted shall be placed, while remaining in the subframe, in a horizontal, impact-side-up position with a minimum of one foot (31 cm) of free space immediately beneath the specimen.
2. The specimen does not remain within the subframe and no breakage is caused by the impactor.
3. The specimen does not break.

Summary

Based on the results presented above, the specimen tested demonstrated compliance to CPSC 16 CFR 1201, Category II.

Test Date

5/1/00

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