

**Consumer Product Safety Commission**

**§ 1201.4**

imbedded in a cast matrix of concrete or epoxy.

(b) Definitions given in the Consumer Product Safety Act, and not repeated in this section, are applicable to this part.

(c) Test methods and recommended practices published by the American Society for Testing and Materials (ASTM)<sup>1</sup>, and referred to in this part 1201, are hereby incorporated by reference into this part.

(d) Test methods and recommended practices published by the American National Standards Institute (ANSI) and referred to in this part 1201, are hereby incorporated by reference into this part.

(Sec. 9(e), Pub. L. 92-573, 86 Stat. 1215; (15 U.S.C. 2058(e); (5 U.S.C. 553))

[42 FR 1441, Jan. 6, 1977, as amended at 42 FR 61860, Dec. 7, 1977; 43 FR 50422, Oct. 30, 1978; 43 FR 57247, Dec. 7, 1978; 45 FR 57389, Aug. 28, 1980; 47 FR 27856, June 28, 1982]

**§ 1201.3 General requirements.**

(a) All glazing materials to which this standard applies, as described in § 1201.1, shall meet the impact and environmental test requirements in § 1201.4, and shall be labeled by manufacturers in accordance with § 1201.5.

TABLE 1—ACCELERATED TEST (APPLICABLE PARAGRAPHS)

Glazing materials	Specimen	Test equipment	Exposure	Criteria for passing
Laminated glass	§ 1201.4(c)(1) and (c)(3)(i)	§ 1201.4(b)(3)(i)	§ 1201.4(d)(2)(i)	§ 1201.4(e)(2)(i)
Organic coated glass	§ 1201.4(c)(1) and (c)(3)(ii)(B)	§ 1201.4(b)(3)(ii)	§ 1201.4(d)(2)(ii)(B)	§ 1201.4(e)(2)(ii)(B)
Tempered glass	Exempt			
Wired glass	Exempt			
Annealed glass	Exempt			

(3) Separate testing is required for different glazing materials or for differences within a type of glazing material that could noticeably affect performance in the impact or environmental durability tests. Such differences could include (but are not limited to): Nominal thickness or thicknesses, method of manufacture (in appropriate cases), types and amounts of additives, and composition of base materials and adhesives.

<sup>1</sup>ASTM test methods and recommended practices are approved by, published by, and available for purchase from the American

(b) Glazing materials used in architectural products not listed in § 1201.1(a) are not subject to this part. Any material not listed in the definition of “glazing material” in § 1201.2(a)(11) is not subject to this part 1201.

[42 FR 1441, Jan. 6, 1977, as amended at 47 FR 27856, June 28, 1982]

**§ 1201.4 Test procedures.**

(a) *Types of tests*—(1) *Impact test.* Specimens shall be struck as prescribed by paragraph (d)(1) of this section using equipment specified by paragraphs (b) (1) and (2) of this section. Results of the impact test are to be interpreted in accordance with paragraph (e)(1) of this section. The test specimens shall be selected in accordance with paragraphs (c) (1) and (2) of this section.

(2) *Accelerated environmental durability tests.* Each specimen of glazing material subject to this part 1201 shall be tested in accordance with the accelerated tests referenced in table 1, “Accelerated Tests” of this section. However, tempered glass, wired glass, and annealed glass are not required to be subjected to the accelerated environmental durability tests.

(b) *Test equipment*—(1) *Impact test frame and subframe.* (See figures 1, 2, 3, and 4.) (i) The impact test frame shall be constructed to minimize movement and deflection of its members during testing. For this purpose, the structural framing and bracing members shall be steel angles 3 inches by 5 inches by ¼ inch (7.7 centimeters by 12.7 centimeters by 0.7 centimeters) or other sections and materials of equal or greater rigidity.

Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

## § 1201.4

## 16 CFR Ch. II (1–1–05 Edition)

(ii) The structural framing shall be welded or securely bolted at the corners and braced by one of the alternate methods shown in figure 1 and shall be securely bolted to the floor.

(iii) The inner subframe (see figures 2, 3, and 4) for securing the test specimen on all four edges shall be reinforced at each corner. The material is shown as wood in figure 3, but other materials may be used: *Provided*, The test specimen will contact only the neoprene strips, which shall have a shore A durometer hardness of 30 to 50.

(iv) Any reasonable means may be used to secure the subframe to the test frame so long as the mounting is secure and the pressure on the glazing in the subframe is not significantly altered when the subframe is removed.

(v) Pressures on the test specimen shall be controlled, and the compression of the neoprene strips shall be between 10 and 15 percent of the original thickness of the neoprene. Securing methods such as wing bolts and clamps shall be uniformly spaced no greater than 18 inches (45 centimeters) apart with no fewer than two on any edge. To limit the compression of the neoprene and prevent distortion of the subframe, metal shims of an appropriate thickness shall be used as shown in figures 3 and 4.

(2) *Impactor.* (i) The impactor shall be a leather punching bag as shown in figure 5 on this section. The bag shall be filled with No. 7½ chilled lead shot to a total weight of completed assembly as shown in figure 5, of 100 pounds ±4 ounces (45.36±0.11 kilograms). The rubber bladder shall be left in place and filled through a hole cut into the upper part. After filling the rubber bladder, the top should be either twisted around the threaded metal rod below the metal sleeve or pulled over the metal sleeve and tied with a cord or leather thong. Note that the hanging strap must be removed. The bag should be laced in the normal manner. The exterior of the bag shall be completely covered by ½ inch (1.3 centimeters) wide glass filament reinforced pressure sensitive tape. (Figure 5.)

(ii) Provisions shall be made for raising the impactor or to drop heights of up to 48 inches (1.22 meters). At its release it shall have been supported so

that the rod going through its center was in line with the steel support cable in a manner designed to minimize wobble or oscillation after its release.

(3) *Environmental durability test equipment—(i) Boil test.* Two containers of water shall be provided with means to maintain one at 150° ±5 °F (66° ±2 °C) and the second at a slow boil at atmospheric pressure. The containers shall be large enough to accept a rack holding three specimens, each 12 inches (30 centimeters) square, of the glazing material in a vertical position. The rack shall be positioned so that each specimen is surrounded by at least one inch (2.5 centimeters) of water.

(ii) *Simulated weathering test.* The equipment shall be a xenon arc (water-cooled) Weather-Ometer employing a lamp rated at 6500 watts and automatic light monitoring and control systems. Borosilicate inner and outer filters shall be used. An appropriate water spray cycle shall be used. Operating procedures shall be in accordance with ASTM G 26-70, "Standard Recommended Practice for Operating Light—and Water-Exposure Apparatus (Xenon-Arc Type) for Exposure of Non-metallic Materials," April 13, 1970, as augmented for plastics by ASTM D 2565-70, "Standard Recommended Practice for Operating Xenon-Arc Type (Water-Cooled) Light- and Water-Exposure Apparatus for Exposure of Plastics," Procedure B, June 12, 1970, which are incorporated by reference. Copies of both documents are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103. They are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). This incorporation by reference was approved by the Director of the Federal Register. These materials are incorporated as they exist in the edition which has been approved by the Director of the Federal Register and which has been filed with the Office of the Federal Register.

(c) *Test specimens—(1) Condition of specimens.* All specimens shall be tested

as supplied by the manufacturer, following removal of any temporary protective masking materials. No tests shall be commenced before the specimens have been stored in the laboratory for 4 hours. Specimens shall be arranged to permit free circulation of air to all surfaces during this period.

(2) *Impact specimens.* Impact specimens shall be of the largest size manufactured up to a maximum width of 34 inches (86 centimeters) and a maximum height of 76 inches (1.9 meters). Specimens shall be tested for each nominal thickness offered by the manufacturer.

(3) *Environmental durability specimens—(i) Boil test.* Three pieces 12 inches by 12 inches (30 centimeters by 30 centimeters) with nominal thickness identical to those submitted for the impact test shall be used.

(ii) *Weathering tests—(A) [Reserved]*

(B) *Organic-coated glass—(1) Orientation specified.* Six organic-coated glass specimens 2 inches by 6 inches (5 centimeters by 15 centimeters) by nominal thickness identical to those submitted for the impact test shall be used.

(2) *Orientation unspecified.* Nine organic-coated glass specimens, 2 inches by 6 inches (5 centimeters by 15 centimeters) by nominal thickness identical to those submitted for the impact test shall be used except that when the glazing material is symmetric across its thickness, six specimens may be used.

(iii) *Indoor service.* Four additional samples identical to those submitted for the impact test.

(d) *Test procedures—(1) Impact test procedure.* Each specimen shall be struck within 2 inches (5 centimeters) of its geometric center with the impactor dropped from a single height, designated according to the product category. Specimens for Category I shall be impacted one time from a drop height of 18 to 18½ inches (458 to 470 millimeters). Specimens for Category II shall be impacted one time from drop height of 48 to 48½ inches (1.22 to 1.23 meters). For all specimens that are not symmetric from surface to surface, an equal number of specimens shall be impacted on each side. For glazing materials which will be evaluated by paragraph (e)(1)(iii) of this section, this impact test procedure is not required.

(2) *Environmental durability test procedures—(i) Boil test.* The specimens shall be immersed in the 150 F (66 °C) water for 3 minutes. They shall then be quickly removed and immersed in the boiling water and left there for 2 hours. The specimens shall then be removed, cooled, and dried for examination as specified in paragraph (e)(2)(i) of this section.

(ii) *Accelerated weathering test.* The specimens shall be retained in the Weather-Ometer (paragraph (b)(3)(ii) of this section) for a period of 1200±1 hours, and exposed to a radiant flux of 50 microwatts per square centimeter (12 calories per second per square centimeter) while monitoring at a wavelength of 340 nanometers.

(A) [Reserved]

(B) *Organic-coated glass—(1) Orientation specified.* Three specimens shall be mounted with the surface that is intended to be oriented indoors faced away from the radiation source; the other three specimens shall be kept in darkness at 73 °F (23 °C) for use as controls. Materials so tested shall be labeled according to §1201.5(c) of this part 1201.

(2) *Orientation unspecified.* Three specimens shall be mounted with one of the surfaces toward the radiation; three specimens shall be mounted with the other surface toward the radiation, and three specimens shall be kept in darkness at 73 °F (23 °C) for use as controls. When the glazing material is symmetric across its thickness, three specimens shall be irradiated.

(e) *Interpretation of results—(1) Impact test.* A glazing material may be qualified for use in both Category I and Category II products if it meets the impact requirements for Category II. A glazing material shall be judged to pass the impact test if the specimen tested meets any one of the criteria listed in paragraphs (e)(1) (i) through (v) of this section:

(i) When breakage occurs (numerous cracks and fissures may occur) no opening shall develop in the test sample through which a 3 inch (76 millimeter) diameter solid steel sphere, weighing 4 pounds ±3 oz (1.81±0.08 kilograms), passes when placed (not dropped) in the opening and permitted to remain for a period of one second.

## § 1201.4

## 16 CFR Ch. II (1-1-05 Edition)

For this criterion, the sample 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 centimeters) of free space immediately beneath the specimen.

(ii) When breakage occurs, what appear to be the 10 largest particles shall be selected within 5 minutes subsequent to the test and shall weigh no more than the equivalent weight of 10 square inches (64 square centimeters) of the original specimen. For the purposes of this section *particle* means a portion of a broken test specimen which is determined by identifying the smallest possible perimeter around all points in the portion of the broken test specimen, always passing along cracks or exposed surfaces.

(iii) [Reserved]

(iv) The specimen does not remain within the subframe and no breakage is caused by the impactor.

(v) The specimen does not break.

(2) *Environmental durability tests*— (i) *Boil test*. The glass itself may crack in this test, but no bubbles or other defects shall develop more than ½ inch (12 millimeters) from the outer edge of the specimen or from any crack that may develop. Any specimen in which the glass cracks to an extent that confuses the interpretation of the results shall be discarded, and another specimen shall be tested in its stead.

(ii) *Accelerated weathering test*—(A) [Reserved]

(B) *Organic-coated glass*. Specimens shall be judged satisfactory if they pass both the adhesion test and the tensile test described below in paragraph (e)(ii)(B) (1) and (2) of this section.

(1) *Adhesion test (organic-coated glass only)*—(i) *Specimens*. The specimens for this test are the 2 inch by 6 inch (5 centimeters by 15 centimeters) weathered specimens and the control specimens. The specimens shall be conditioned just prior to the performance of the adhesion test at 73° ±6 °F (23° ±3 °C) and 50±5 percent relative humidity for 24 hours.

(ii) *Apparatus*. The test apparatus shall consist of a constant-rate-of-extension-type (CRE) tensile tester with the moving crosshead set to move at 12 inches per minute (5 millimeters per

second) and load range such that the average pull force will fall at 30 to 50 percent of full scale. A cutter shall be used containing new razor blades for cutting 1 inch (25 millimeter) wide specimens of the organic coating on the glass. The razor blades shall be used one time only.

(iii) *Procedure*. Using the razor cutter, cut a straight, 1 inch (25 millimeter) wide strip of the organic coating in the lengthwise direction of the glass specimen along and within ¼ inch (6 millimeters) of one edge. Peel back, cleanly and evenly, about 2 inches (50 millimeters) of one end of the 1 inch (25 millimeters) wide organic strip. Attach a strip of reinforced pressure sensitive tape to the side of the organic strip opposite the adhesive, to extend this free end to about 8 inches (200 millimeters) in length. Place the end of the glass panel from which the organic strip was removed in the lower clamp of the tensile tester and the free end of the tape in the upper clamp. Peel the remainder of the organic strip from the glass mechanically and obtain a record of the pull force value. Determine and record the average pull force value for each specimen from the chart. Weathered and control specimens are to be tested alternately.

(iv) *Interpretation of results*. The organic-coated glass adhesion shall be judged satisfactory if the average pull force for the weathered specimens is no less than 90 percent of the average pull force for the control specimens.

(2) *Tensile strength test (organic-coated glass only)*. (i) The specimens for this test are the same 2 inch by 6 inch (5 centimeter by 15 centimeter) specimens used in the adhesion test.

(ii) *Apparatus*. The CRE tensile tester shall be used with the moving crosshead set to move at 2 inches per minute (0.8 millimeter per second) and the load range such that the specimens will break at 30 to 60% of full scale. A cutter shall be used containing new razor blades for cutting ½ inch (12 millimeter) wide specimens of the organic coating on the glass. The razor blades shall be used one time only.

(iii) *Procedure*. Using the ½ inch (12 millimeter) razor cutter, cut a straight strip of the organic coating in the

## Consumer Product Safety Commission

## § 1201.7

lengthwise direction of the glass specimen for the full 6 inch (15 centimeter) length. Carefully peel this strip from the glass panel and test it for breaking strength in the tensile tester.

(iv) *Interpretation of results.* The organic coating tensile strength shall be judged satisfactory if the average tensile value of the weathered specimens is no less than 75 percent of the average of the control specimens. Weathered and control specimens are to be tested alternately.

(Sec. 9(e) Pub. L. 92-573, 86 Stat. 1215; (15 U.S.C. 2058(e)); (5 U.S.C. 553); sec. 9(h), Consumer Product Safety Act, as amended by the Consumer Product Safety Amendments of 1981 (Pub. L. 92-673, as amended by Pub. L. 97-35, 15 U.S.C. 2057(h)) and 5 U.S.C. 553)

[42 FR 1441, Jan. 6, 1977, as amended at 43 FR 43708, Sept. 27, 1978; 43 FR 57594, Dec. 8, 1978; 45 FR 66007, Oct. 6, 1980; 46 FR 63250, Dec. 31, 1981; 47 FR 27857, June 28, 1982]

### § 1201.5 Certification and labeling requirements.

(a) Manufacturers and private labelers of glazing materials covered by this part 1201 shall comply with the requirements of section 14 CPSA (15 U.S.C. 2063) and regulations issued under section 14.

(b) [Reserved]

(c) Organic-coated glass that has been tested for environmental exposure from one side only must bear a permanent label on the coating stating "GLAZE THIS SIDE IN" and shall bear in the central 50 percent of the surface area the following message in letters at least ¼ inch (7 millimeters) high: "SEE PERMANENT LABEL FOR IMPORTANT MOUNTING INSTRUCTION." The latter message shall be attached to either side of the glazing by any means which shall ensure the message will remain in place until installation.

[42 FR 1441, Jan. 6, 1977, as amended at 45 FR 66007, Oct. 6, 1980]

### § 1201.6 Prohibited stockpiling.

(a) *Stockpiling.* For the purposes of this section, the term *stockpiling* means manufacturing or importing the affected products between the date of issuance of this part in the FEDERAL REGISTER and the effective date set out below in § 1201.7 at a rate significantly greater (prescribed in paragraph (b) of

this section) than the rate at which the affected products were produced or imported during a base period (prescribed in paragraph (c)(2) of this section).

(b) *Prohibited acts.* Manufacturers and importers of glazing materials, fabricators, and manufacturers or importers of architectural products specified in § 1201.1(a) who incorporate glazing material shall not incorporate glazing materials which do not comply with the requirements of this part 1201 into such products between the date of issuance of this part in the FEDERAL REGISTER and the effective date set out in § 1201.7 below at a rate greater than the rate of production or importation during the base period (defined in paragraph (c)(2) of this section) plus ten percent. For wired glass used in doors or other assemblies subject to this part 1201 and intended to retard the passage of fire, when such doors or other assemblies are required by a Federal, State, local or municipal fire ordinance, the rate of production during the base period may be increased annually by no more than 10 percent.

(c) *Definitions.* As used in this section:

(1) *Rate of production (or importation)* means the total number of affected architectural products incorporating glazing material not complying with this part manufactured or imported during a stated base period.

(2) *Base period* means, at the option of the manufacturer or importer, any period of 180 consecutive days prior to January 6, 1977, said period to be selected within an interval which begins July 6, 1975.

### § 1201.7 Effective date.

The effective date of this part 1201 shall be July 6, 1977 except:

(a) For glazing materials used in doors or other assemblies subject to this part and intended to retard the passage of fire when such doors or other assemblies are required by a Federal, State, or local or municipal fire ordinance, the effective date shall be January 6, 1980.

(b) Architectural glazing materials manufactured before July 6, 1977 may be incorporated into architectural products listed in § 1201.1(a) through July 5, 1978 if: