



## Standard Test Method for Diffuse Light Transmission Factor of Reinforced Plastics Panels<sup>1</sup>

This standard is issued under the fixed designation D 1494; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope \*

1.1 This test method covers the determination of the diffuse light transmission factor of translucent reinforced plastics building panels.

1.2 The values stated in SI units are to be regarded as the standard. The values given in the parentheses are for information only.

1.3 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in Tables and Figures) shall not be considered as requirements of this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—There are no ISO standards covering the subject matter of this specification.

### 2. Referenced Documents

- 2.1 *ASTM Standards:* [www.astm.org/catalog/standards/sist/44bd2](http://www.astm.org/catalog/standards/sist/44bd2)
- D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing<sup>2</sup>
  - D 883 Terminology Relating to Plastics<sup>3</sup>
  - D 1600 Terminology for Abbreviated Terms Relating to Plastics<sup>3</sup>
  - E 691 Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods<sup>4</sup>

### 3. Terminology

3.1 General—Definitions are in accordance with Terminology D 883 and abbreviations with Terminology D 1600, unless otherwise indicated.

### 4. Significance and Use

4.1 The purpose of this test method is to obtain the diffuse light transmittance factor of both flat and corrugated translucent building panels by the use of simple apparatus and by employing as a light source a combination of fluorescent tubes whose energy distribution closely approximates CIE Source C.

### 5. Apparatus

5.1 The apparatus for this test method shall consist of a transmissometer,<sup>5</sup> Fig. 1, comprising essentially the following:

5.1.1 *Light Source*—The illumination shall consist of twelve 20-W fluorescent tubes<sup>6</sup> which are assembled in three banks of four tubes each, according to the following schedule: daylight, deluxe cool white, blue, and daylight.

5.1.2 *Photometer*—The photometer shall consist of a photocell and of a galvanometer. The photocell shall be of the barrier-layer type and shall contain a visual correction filter. The assembly preferably should be hermetically sealed into plastic as a protection against moisture. The indicating galvanometer should contain one scale graduated from 0 to 100, and a circuit with sufficient variable resistance so that the sensitivity of the photometer can be adjusted over the range of 50 to 100 footcandles.

5.1.3 *Test Cabinet*, constructed in accordance with the following dimensions.<sup>7</sup>

5.1.3.1 The transmitted area of the test specimen shall be  $610 \pm 1.6$  mm by  $610 \pm 1.6$  mm ( $24 \pm 1/16$  in. by  $24 \pm 1/16$  in.).

5.1.3.2 The distance from the bottom of the fluorescent tubes to the bottom of the test specimen shall be  $203 \pm 0.8$  mm ( $8 \pm 1/32$  in.).

5.1.3.3 A 4.8-mm ( $3/16$ -in.) thick, white, standard outdoor, translucent diffusing plate<sup>8</sup> shall be placed between the light source and the test specimen so that the distance from the bottom of the diffusing plate to the bottom of the test specimen

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 08.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 08.04.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 08.03.

<sup>5</sup> The SPI (Society of the Plastics Industry) transmissometer has been found satisfactory for this purpose.

<sup>6</sup> General Electric fluorescent tubes have been found satisfactory for this purpose.

<sup>7</sup> Detailed working drawings and a bill of materials for this equipment can be obtained at a nominal charge from ASTM Headquarters, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428–2959. Order Adjunct: ADJD1494.

<sup>8</sup> Plexiglas II, W7328, or its equivalent, has been found satisfactory for this purpose.

\*A Summary of Changes section appears at the end of this standard.