

Tentative Method of Test for

COLORFASTNESS OF PLASTICS TO LIGHT¹



A.S.T.M. Designation: D 620 - 45 T

ISSUED, 1941; REVISED, 1945.²

This Tentative Method has been approved by the sponsoring committee and accepted by the Society in accordance with established procedures, for use pending adoption as standard. Suggestions for revisions should be addressed to the Society at 1916 Race St., Philadelphia 3, Pa.

Scope

1. (a) This method of test is intended to establish a laboratory procedure for evaluating the relative resistance of plastics to change in color when exposed to sunlight (Note). Plastics may change in color because of the action of solar radiation on the dyes or pigments or on the plastic base.

NOTE.—Some correlation has been observed between color changes in plastics resulting from exposure to the conditions of this test method and those resulting from a much longer exposure to sunlight, but no general assumption as to the existence or the extent of such correlation should be made.

(b) This method is not intended to show the resistance of plastics to weathering, that is, continuous exposure of the materials out-of-doors.

Apparatus

2. The apparatus (Fig. 1) shall consist of the following:

(a) *Lamp*.—A General Electric sun-lamp, model BM 12, or an equivalent

lamp, equipped with a reflector approximately 15 in. in diameter at the lower rim, and an S-1 bulb which has been in use at least 50 hr. and less than 550 hr. The S-1 bulb consists of a combination tungsten filament - mercury arc enclosed in Corex D glass which absorbs most of the ultraviolet radiation below 2800 Å (Note 1). The bulb is rated at 400 w. The operating voltage shall be maintained at 110 ± 2 v. (Note 2).

NOTE 1.—To measure the ultraviolet light output of the S-1 bulb, the actinometer cell using an oxalic acid - uranyl sulfate solution may be used as described in the Tentative Method of Calibrating a Light Source Used for Accelerating the Deterioration of Rubber (A.S.T.M. Designation: D 749).³ As no minimum value for the ultraviolet output has been established, actinometer data are useful only for comparisons between lamps.

NOTE 2.—To control voltage within the limits specified, an automatic voltage-stabilizer such as General Electric stabilizer, Catalogue No. 68G158, may be used.

(b) *Disk*.—A phonograph turntable, operating at 33 rpm., on which shall be mounted a light-colored corrosion-re-

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-20 on Plastics.

² Revision accepted by Committee E-10 on Standards, May 10, 1945.

³ Appears in this publication, see Contents in Numeric Sequence of A.S.T.M. Designations at front of book.