

Standard Method of Test for DIFFUSION OF LIGHT BY PLASTICS¹



A.S.T.M. Designation: D 636 - 43

ADOPTED, 1943.²

This Standard of the American Society for Testing Materials is issued under the fixed designation D 636; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. (a) This method of test is designed to differentiate the relative ability of plastics to diffuse light and is applicable to materials that scatter incident light to an appreciable extent (diffusion). It is not successfully applicable to the measurement of low ranges of scattering (haze) which are associated with slight departures from optical clarity.

(b) An instrument and procedure are described for measuring the reflective and transmissive diffusion of a beam of light by a flat test specimen of the plastic, the face of which is essentially normal to the axis of the light beam, with numerical means for rating the scattering or diffusion in terms of a theoretically perfect light-scattering surface or medium.

Apparatus

2. (a) The apparatus shall consist of a goniophotometer, the axes of the active elements of which operate in a horizontal plane that passes through the

center of the test specimen. The active elements shall consist of a light source and optical system so oriented as to illuminate the face of the test specimen at its center, a specimen holder which locates the test specimen normally to the axis of the light beam (except as modified by Paragraph (b)), a photosensitive receptor fixed to a radius arm which has the vertical axis of the face of the specimen as its center of rotation, a galvanometer for indicating the current flow in the receptor circuit, and an enclosure or other means for excluding extraneous light. These units shall be combined into one instrument in accordance with the requirements prescribed in Paragraphs (b) to (g):

(b) *Angle of Illumination of Face of Specimen.*—The axis of the light beam shall meet the center of the face of the specimen normally, except in the horizontal plane, where it shall be displaced 3 deg. in a counterclockwise direction. This angle allows the receptor element to intercept the center of any specularly reflected component from the specimen, without interfering with the beam leaving the source.

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 Prior to adoption as standard, this method was published as tentative from 1941 to 1943.