

Tentative Method of

CALIBRATING A LIGHT SOURCE USED FOR ACCELERATING THE DETERIORATION OF RUBBER¹



A.S.T.M. Designation: D 749 - 43 T

ISSUED, 1943.²

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 is intended primarily for use in measuring the intensity of radiation from the light source used in connection with the Tentative Method of Test for Resistance to Accelerated Light Aging of Rubber Compounds (A.S.T.M. Designation: D 750).³ It may also be used for measuring and integrating the intensity or total exposure from other light sources which are intermittent or variable in intensity, such as sunlight. It may also be used for comparing light sources with regard to ultraviolet intensity.

(b) It must be emphasized that calibrations made as described in this method are essentially a measure of the ultraviolet dosage of a given source of light. Such calibrations do not permit the comparison of light sources differing in spectral distribution unless further in-

formation is available. However, this method will determine the constancy of a specific source, and may be used to compare the intensities of similar light sources.

Nature of Test

2. This method is based on the fact that oxalic acid in the presence of uranyl sulfate in aqueous solution is photochemically decomposed by light, essentially at a rate in direct proportion to the intensity and total radiation of the light source to which the solution is exposed over the wave length range used for the test. The test method involves the exposure of a standardized oxalic acid - uranyl sulfate solution in a quartz cell to the radiation to be evaluated, followed by a determination of the quantity of oxalic acid decomposed during a measured time period of exposure.

Apparatus

3. The apparatus shall consist of the following:

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-11 on Rubber and Rubber-Like Materials.

² Accepted by Committee E-10 on Standards, November 20, 1943.

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