

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 878

PLASTICS

DETERMINATION OF RESISTANCE OF PLASTICS
TO COLOUR CHANGE UPON EXPOSURE TO LIGHT
OF THE ENCLOSED CARBON ARC

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 878, *Plastics – Determination of resistance of plastics to colour change upon exposure to light of the enclosed carbon arc*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the United States of America Standards Institute (USASI).

Work on this question led, in 1963, to the adoption of a Draft ISO Recommendation.

In August 1964, this Draft ISO Recommendation (No. 758) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Argentina	Hungary	Romania
Austria	India	South Africa, Rep. of
Belgium	Israel	Switzerland
Canada	Japan	Turkey
Czechoslovakia	Korea, Rep. of	U.A.R.
Finland	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	Poland	U.S.S.R.

Two Member Bodies opposed the approval of the Draft :

Italy
Sweden

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in December 1968, to accept it as an ISO RECOMMENDATION.

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1. SCOPE

This ISO Recommendation describes a procedure for assessing the resistance of plastics to colour change upon exposure to light of an enclosed carbon arc.

2. PRINCIPLE OF METHOD

- 2.1 Specimens of the plastics material to be tested are exposed to light, together with pieces of the dyed wool standards specified in ISO Recommendation R 105/I, *Tests for colour fastness of textiles (First series)*, Part 11 : "Colour fastness to light : Daylight". These standards vary in colour fastness to light, No. 8 being the most stable and No. 1 the least stable.

After specified exposure, the degree of contrast between exposed and unexposed portions of the test specimens is compared with that of the dyed wool standards, and the fastness number obtained from the number of the standard which shows a degree of contrast similar to that of the test specimen.

Provision is also made in this ISO Recommendation for the use of other standards and other means of measurement. Related methods are described in the following ISO Recommendations :

ISO Recommendation R 877, *Determination of resistance of plastics to colour change upon exposure to daylight;*

ISO Recommendation R 879, *Determination of resistance of plastics to colour change upon exposure to light of a xenon lamp.*

- 2.2 The quality and intensity of solar radiation at the earth's surface vary with climate, location and time. Consequently, uniform, reproducible exposure ordinarily is not achieved under natural conditions. Laboratory sources of radiation vary among themselves, with ambient conditions and with usage. These variations should be recognized both in measuring the effects of exposure on plastics and in interpreting the results of such measurements. The use of dyed wool standards as a reference provides a means for minimizing the effects of these variables. The carbon arc apparatus permits controlled and rapid evaluation of the resistance of plastics to radiation rich in ultra-violet energy. While radiation may affect other properties of plastics, this method pertains only to its effect on colour.