

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1137

PLASTICS

METHOD OF TEST
FOR THE DETERMINATION OF THE BEHAVIOUR OF PLASTICS
IN A VENTILATED TUBULAR OVEN

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1137, *Plastics – Method of test for the determination of the behaviour of plastics in a ventilated tubular oven*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American National Standards Institute (ANSI).

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

In July 1967, this Draft ISO Recommendation (No. 1300) was circulated to all the Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Hungary	South Africa, Rep. of
Austria	India	Spain
Belgium	Iran	Sweden
Bulgaria	Israel	Switzerland
Canada	Japan	Turkey
Chile	Netherlands	U.A.R.
Colombia	New Zealand	United Kingdom
Czechoslovakia	Poland	U.S.A.
France	Portugal	U.S.S.R.
Greece	Romania	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1969, to accept it as an ISO RECOMMENDATION.

PLASTICS

METHOD OF TEST FOR THE DETERMINATION OF THE BEHAVIOUR OF PLASTICS IN A VENTILATED TUBULAR OVEN

1. SCOPE

This ISO Recommendation describes a procedure for determining the behaviour of plastics during exposure in a ventilated tubular oven.

2. PRINCIPLE

Each plastics test specimen is exposed in a tube in an air current having carefully controlled temperature and velocity. After an interval of time, previously determined, the changes in one or more properties are measured, such as loss in mass, change of mechanical, thermal or other properties, change in colour, etc.

Loss in mass (usually of plasticizer) is proportional to the surface area of the test specimens, but is also influenced by their thickness. Consequently, in comparing different products, it is absolutely necessary to examine test specimens of equal thickness.

3. APPARATUS

The apparatus (see Fig. 1) consists of

- a device supplying heated air (see clause 3.1);
- a thermostated enclosure containing tubes through which the air circulates at constant temperature and velocity (see clause 3.2);
- auxiliary control equipment (see clauses 3.3 and 3.4);
- specimen holders (see clause 3.5).

3.1 Device supplying heated air at a constant temperature (between 70 and 160 °C)

This contains a fan which draws air from outside of the apparatus. This air is heated and homogenized, for example by passing it over electric heating coils controlled by a thermoregulator at the entrance of one of the tubes of the enclosure described in clause 3.2. After mixing, the air passes through the tubes.

3.2 Thermostated enclosure

This enclosure is at the same temperature as the heated air and this temperature is confirmed by a thermometer. In the enclosure are fixed demountable glass tubes of internal diameter between 35 and 50 mm and of length greater than 500 mm. In any case, the internal diameter must be greater by at least 10 mm than the width of the specimens to be inserted into them.

The tubes may be mounted horizontally or vertically. Valves are placed at the entrance and, if desired, at the exit of the tubes to allow regulation of the air speed to 100 ± 10 m/min*.

A simple means of obtaining uniform flow, such as glass wool plugs, is placed at the entrance and exit of the tubes.

The air is finally discharged to the atmosphere.

* Upon agreement between supplier and purchaser, other velocities, for instance 250 ± 25 m/min, may be used.