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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION
R 871

PLASTICS

DETERMINATION OF THE TEMPERATURE OF EVOLUTION OF FLAMMABLE GASES FROM PLASTICS

1st EDITION
November 1968

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 871, *Plastics – Determination of the temperature of evolution of flammable gases from plastics,* 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 1965, to the adoption of a Draft ISO Recommendation.

In September 1966, this Draft ISO Recommendation (No. 991) 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 :

Australia	Iran	South Africa, Rep. of
Austria	Ireland	Spain
Belgium	Israel	Sweden
Brazil	Italy	Switzerland
Bulgaria	Japan	Thailand
Chile	Korea, Rep. of	U.A.R.
Czechoslovakia	Netherlands	United Kingdom
Finland	New Zealand	U.S.A.
France	Poland	U.S.S.R.
Hungary	Portugal	
India	Romania	

Two Member Bodies opposed the approval of the Draft :

Canada
Turkey

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

ISO Recommendation R 871 November 1968

PLASTICS

DETERMINATION OF THE TEMPERATURE OF EVOLUTION OF FLAMMABLE GASES FROM PLASTICS

1. SCOPE

This ISO Recommendation describes a method for determining the temperature at which plastics begin to decompose appreciably to flammable gaseous products. It is one of a number of methods of use in evaluating the resistance of plastics to the effects of high temperatures.

2. DEFINITION

For the purposes of this ISO Recommendation, the *decomposition temperature* is defined as that temperature, measured in degrees Celsius, at which flammable gases are evolved from a material under specified test conditions.

3. SIGNIFICANCE OF THE TEST

This test provides an assessment of the evolution of combustible gases from plastics when exposed to high temperatures for a considerable length of time. The test does not, however, give a direct measure of the flammability or rate of burning of a material nor any definition of the safe upper limit of temperature for the plastics in use.

4. APPARATUS

The apparatus (see Fig.) consists essentially of a cylindrical block of copper or aluminium, having a diameter of approximately 100 mm and a height of approximately 100 mm, provided with a thermometer hole and with holes for the insertion of the specimen containers. The apparatus is provided with either a gas or an electrical heating system (preferably the latter), capable of keeping the temperature at a preselected value between 150 and 400 °C and with an accuracy of ± 2 degC. The specimen containers are made of stainless steel and are provided with lids having nozzle-shaped openings for the gas to escape. The igniting flame is of a type similar to that used for determining flash point. It should have a diameter of 3 to 5 mm. The device for applying the flame may be of any suitable type but it is suggested that the tip be approximately 1.6 mm in diameter at the end, and that the orifice be 0.8 mm in diameter. The device for operating the igniting flame may be mounted in such a manner that the centre of the orifice swings in a plane not greater than 2 mm above the plane of the lid opening of the container.

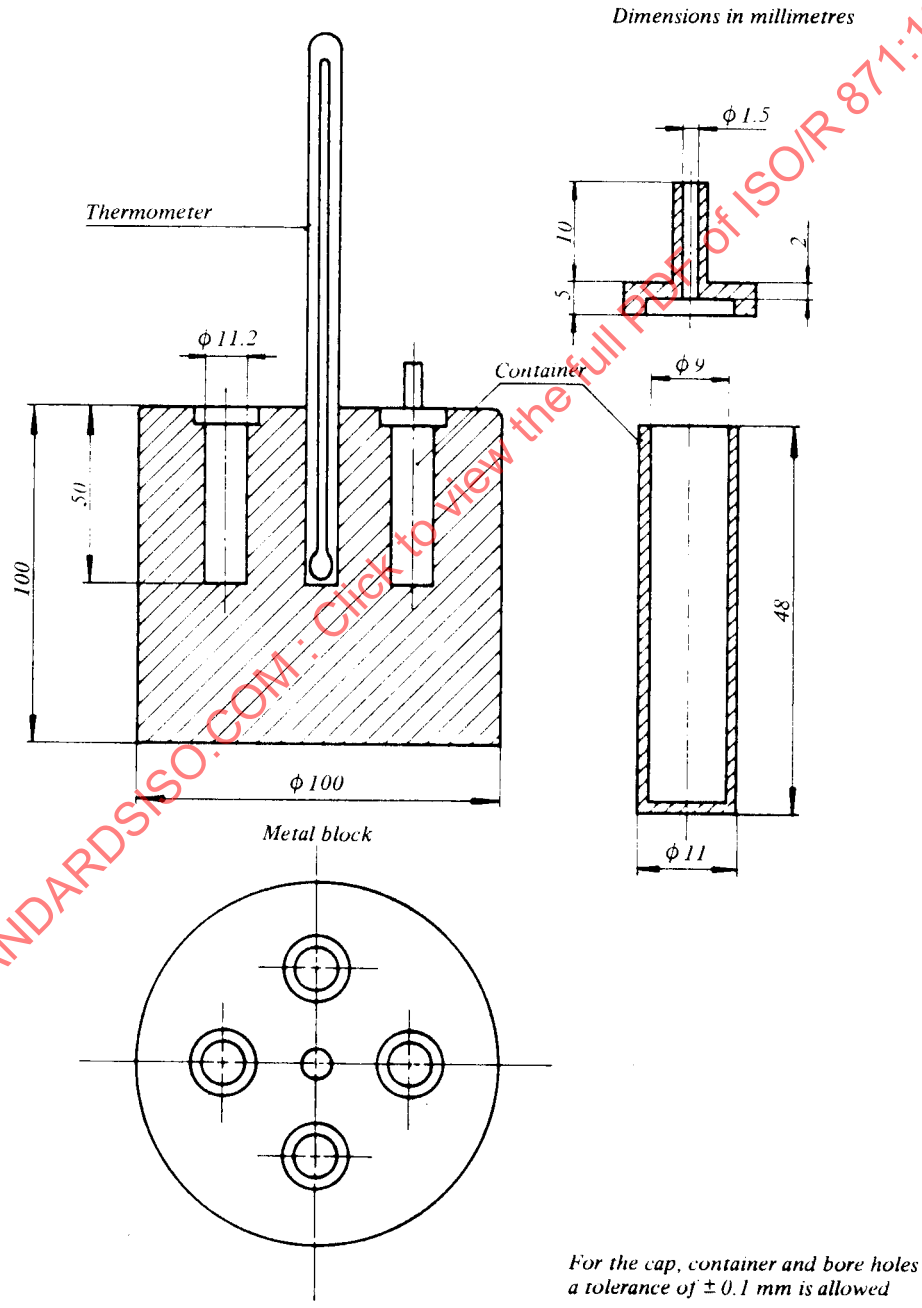

FIGURE – **Apparatus for the determination of the temperature of evolution of flammable gases**