

transl. by
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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 652

ENCLOSED-SCALE CALORIMETER THERMOMETERS

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 652, *Enclosed-scale calorimeter thermometers*, was drawn up by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1957 and led, in 1961, to the adoption of a Draft ISO Recommendation.

In December 1963, this Draft ISO Recommendation (No. 716) was circulated to all the ISO Member Bodies for enquiry. It was approved by the following Member Bodies:

Argentina	Czechoslovakia	New Zealand
Australia	France	Poland
Austria	Greece	Spain
Belgium	Hungary	Switzerland
Brazil	India	Turkey
Bulgaria	Italy	U.A.R.
Canada	Japan	United Kingdom
Chile	Korea Rep. of	U.S.A.
Colombia	Netherlands	Yugoslavia

One Member Body opposed the approval of the Draft:

Germany

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

ENCLOSED-SCALE CALORIMETER THERMOMETERS

1. SCOPE

This ISO Recommendation specifies requirements for a series of short-range enclosed-scale thermometers for use in bomb calorimetry and for other purposes where an accurate measurement of a change of temperature is required. The thermometers are not provided with auxiliary scales at 0 °C and are therefore not suited to the absolute measurement of temperature (which is not normally required in calorimetry), unless they are checked against a standard thermometer immediately before use.

2. TYPE OF THERMOMETER

The thermometers should be of the mercury-in-glass enclosed-scale type.

3. TEMPERATURE SCALE

The temperature scale to which the thermometers refer is the International Practical Scale of Temperature, adopted by the Conference Générale des Poids et Mesures in 1960 as the revised edition of the International Temperature Scale of 1948.

4. IMMERSION

The thermometers should in general be adjusted for use at total immersion (i.e. the reading should be correct when the thermometer is immersed at least to the end of the liquid column in the medium whose temperature is required to be measured) in a vertical position, but adjustment for use at partial immersion should be optional at the request of the user. On partial immersion thermometers, a line should be etched at least half way round the sheath of the thermometer, at the level to which it is intended to be immersed, which should preferably be the junction of the "saddle" and the sheath (marked *E* in Fig. 1, page 4).

5. GLASS

The glass should be selected so that the finished thermometer shows the following characteristics:

- 5.1 Strain in the glass should be reduced to a level sufficient to minimize the possibility of fracture due to thermal or mechanical shock.
- 5.2 The correction of the thermometer reading at the lowest temperature of the nominal range should not change by more than 0.02 degree Celsius immediately after the thermometer has been heated for 15 minutes at a temperature 30 degrees Celsius higher than the lowest temperature and allowed to cool naturally in air.
- 5.3 The accuracy of the reading should not be impaired by devitrifying or clouding during manufacture.
- 5.4 The meniscus should be distorted as little as possible by defects or impurities in the glass.