

International Standard



2744

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Vitreous and porcelain enamels — Determination of resistance to boiling water and water vapour

Émaux vitrifiés — Détermination de la résistance à l'eau bouillante et à sa vapeur

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2744 was developed by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings*.

This second edition was submitted directly to the ISO Council, in accordance with sub-clause 6.11.2 of Part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 2744-1973), which had been approved by the member bodies of the following countries:

Australia	Israel	Spain
Chile	Italy	Sweden
Egypt, Arab Rep. of	Japan	Switzerland
France	Netherlands	Thailand
Germany, F.R.	New Zealand	United Kingdom
Hungary	Portugal	USSR
India	Romania	
Ireland	South Africa, Rep. of	

No member body expressed disapproval of the document.

Vitreous and porcelain enamels — Determination of resistance to boiling water and water vapour

1 Scope and field of application

This International Standard specifies a method of test for determining the resistance of flat surfaces of vitreous and porcelain enamels to boiling water and/or water vapour.

NOTE — If temperatures below the boiling point of water are used or if other than distilled water is used, this should be stated in the test report.

The method allows determination of the resistance of enamels to the liquid and vapour phases of the corrosive medium.

2 References

ISO 2723, *Vitreous and porcelain enamels for sheet steel — Production of specimens for testing.*

ISO 2724, *Vitreous and porcelain enamels for cast iron — Production of specimens for testing.*

ISO 2733, *Vitreous and porcelain enamels — Apparatus for testing with acid and neutral liquids and their vapours.*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders.*

3 Principle

Each set of similarly enamelled specimens is exposed to attack by boiling distilled or demineralized water for 48 h (2 days) or 336 h (14 days), the specimens being placed in the liquid chamber and in the vapour chamber of the testing apparatus as required.

The loss in mass is determined and the corrosion speed calculated therefrom.

The lower the corrosion speed, the higher is the resistance of the vitreous and porcelain enamel to boiling water or water vapour.

4 Reagents

4.1 Distilled or demineralized water.

A fresh supply of the water is required for each test.

4.2 **Acetic acid**, 5 % (m/m) solution, for cleaning test apparatus and specimens.

4.3 **Grease solvent**, such as trichloroethene or acetone, suitable for cleaning the specimens when necessary.

5 Apparatus

5.1 **Testing apparatus and packing B or C**, both in accordance with ISO 2733.

5.2 **Hot-air oven**, capable of maintaining a temperature of at least 130 °C.

5.3 **Desiccator**, for example with an internal diameter of 200 mm.

5.4 **Graduated measuring cylinder**, capacity 500 ml, complying with the requirements of ISO 4788.

5.5 **Beakers.**

5.6 **Balance**, accurate to 0,2 mg.

5.7 **Sponge**, soft.

6 Test specimens

6.1 The specimens to be used shall be prepared in accordance with the International Standards for the appropriate basis metal. Specimens not enamelled on both sides shall be used only for the short test period (48 h).

NOTE — Specimens for testing vitreous and porcelain enamels

- for sheet steel, see ISO 2723;
- for cast iron, see ISO 2724.

6.2 Each specimen shall be rinsed with the water (4.1). If necessary a suitable grease solvent (4.3) shall be used. Then the specimen shall be dried for 2 h in the hot-air oven (5.2) at 110 ± 5 °C, cooled for at least 2 h in the desiccator (5.3) and weighed to the nearest 0,2 mg (starting mass).