INTERNATIONAL STANDARD ISO 2742

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Vitreous and porcelain enamels — Determination of resistance to boiling citric acid

First edition — 1973-12-15

UDC 666.293 : 620.193 : 661.743.5

Ref. No. ISO 2742-1973 (E)

Descriptors : non-metallic coatings, vitreous enamels, tests, chemical tests, chemical resistance, citric acid, high temperature tests.

FOREWORD

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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 2742 was drawn up by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings*, and circulated to the Member Bodies in June 1972.

It has been approved by the Member Bodies of the following countries :

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

No Member Body expressed disapproval of the document.

Printed in Switzerland

Vitreous and porcelain enamels — Determination of resistance to boiling citric acid

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 citric acid.

It is especially intended for the testing of enamels for articles which are used with boiling, slightly dissociated acids, for example cooking utensils.

NOTE — This method of test is also suitable for determining the chemical resistance of enamels to other acid solutions and permits also, if desired, the determination of the resistance of enamels to the vapour phase of the respective test solution.

This method of test is not suitable for enamels used in the chemical industry or those exposed to heavy attack by inorganic acids for a long period.

For testing enamels at room temperature, see ISO 2722.

For testing acid resistance of enamels for containers and apparatus for the chemical industry, see ISO 2743.

2 REFERENCES

ISO 2722, *Vitreous and porcelain enamels — Determination of resistance to citric acid at room temperature.*

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 2743, *Vitreous and porcelain enamels — Determination of resistance to boiling hydrochloric acid.*

3 PRINCIPLE

Exposure of an enamelled specimen to attack by a boiling 6 % (*m/m*) solution of citric acid for 2,5 h which, if information is desired on the further corrosion curve, may be extended to 6, 24, or more hours.

Determination of the loss in mass and calculation therefrom of the loss in mass per unit area.

The lower the loss in mass per unit area, the higher is the resistance of the vitreous and porcelain enamel to boiling citric acid.

4 REAGENTS

4.1 Citric acid, 6 % (*m/m*) solution.

Dissolve 32 g of pure crystalline citric acid ($C_6H_8O_7.H_2O$) in 500 ml of distilled or demineralized water.

A fresh solution, prepared the same day, is required for each test.

4.2 Distilled or demineralized water, for cleaning the testing apparatus and specimens.

4.3 Grease solvent, such as trichloroethylene 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.

If the cylinder of the testing apparatus is not covered by another specimen, a stainless steel plate having a diameter of 105 mm shall be used as the top.

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.

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.

NOTE — Specimens for testing vitreous and porcelain enamels

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