INTERNATIONAL STANDARD ISO 2723

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

Vitreous and porcelain enamels for sheet steel — Production of specimens for testing

First edition — 1973-12-15

UDC 666.293.001.4

Ref. No. ISO 2723-1973 (E)

Descriptors : non-metallic coatings, vitreous enamels, steels, metal sheets, test specimens.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (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 set up 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 2723 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	Romania
Chile	Italy	South Africa, Rep. of
Egypt, Arab Rep. of	Japan	Spain
France	Netherlands	Switzerland
Germany	New Zealand	Thailand
Hungary	Poland	United Kingdom
India	Portugal	U.S.S.R.

No Member Body expressed disapproval of the document.

Printed in Switzerland

Vitreous and porcelain enamels for sheet steel — Production of specimens for testing

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the production of specimens suitable for testing vitreous and porcelain enamels for sheet steel and enamelled sheet steel articles.

When the loss in the mass per unit area of the enamel coating is to be determined quantitatively, specimens specially produced according to clause 4 shall be used, as specimens cut from enamelled articles (clause 5) may reduce the accuracy of the test method.

2 REFERENCES

ISO 2746, *Vitreous and porcelain enamels — Enamelled articles for service under highly corrosive conditions — High voltage test.*

3 SHAPE AND DIMENSIONS OF SPECIMENS

The specimens shall be flat, enamelled, circular or square plates of steel sheet with a diameter of 105 ± 2 mm or a side length of 105 ± 5 mm. According to the carrying capacity of the commonly used analytical balances and with regard to the required weighing accuracy, the mass of the specimens prepared should, in principle, not exceed 200 g.

4 PRODUCTION OF SPECIALLY PREPARED SPECIMENS

4.1 Specification of specimens

The sheet steel upon which the enamel is applied shall be of enamelling quality steel, the thickness of which shall be between 1 and 2 mm.

For the testing of direct-on cover coat enamels, the metal shall be of low carbon enamelling quality steel, i.e. 0,005 % C max., or other type recognized as being suitable for this process.

It may be preferable to hang the specimens during weighing and enamelling; for this purpose a hole of approximately 2,5 mm diameter with its centre 3 mm from the edge of the test plate may be provided in the specimen.

4.2 Enamelling of specimens

4.2.1 *Regular enamels for sheet steel*

The metal may be prepared for enamelling by any one of the recognized procedures, but specimens for comparison shall be prepared using the same procedure and materials.

Ground coat may be dipped or sprayed onto both sides of the specimen so that an agreed coating thickness is applied.

After drying, fusing and cooling of the specimen, the cover coat is applied to one side only. Care shall be taken to ensure that there is a minimum of build-up around the edge of the specimen. The applied enamel may, therefore, be suitably wiped from the edges to a width of 2 or 3 mm after drying and then fused.

For most purposes one cover coat is standard procedure, but in cases where two or three cover coats are considered to be usual practice, the additional coats shall be applied.

If, by the enamelling of two cover coats, no smooth or defect-free surface is attained (see 4.3), the specimens shall be rejected, except those for enamels for containers and apparatus to be used in the chemical industry; here a third or even more layers of cover-coat may be applied and fired. Here, too, the coating thickness on the edge of the specimen is to be kept as thin as possible.

Coating thicknesses may vary, but comparative specimens shall be of the same thickness.

4.2.2 *Direct-on enamels for sheet steel*

The metal shall be prepared for enamelling by any one of the recognized procedures but specimens for comparison shall be prepared using the same procedure and materials.

The enamel shall be applied to one or both sides of the specimen. When the loss in mass per unit area of the enamel coating is to be determined quantitatively, the specimen shall be enamelled on both sides.

When in practice the usual application consists of one coat only, one coat shall be applied. In cases where additional coatings are a necessary part of the finish, these coatings shall be applied.

Coating thicknesses may vary, but comparative specimens shall be of the same thickness.

4.3 Surface of enamelled specimens

The surface of the enamelled specimens shall be flat and free from defects.

The specimens shall be checked by visual inspection for freedom from defects, except those for enamels for containers and apparatus to be used in the chemical industry. These are checked with high voltage for freedom from weak places and pinholes (see ISO 2746). The voltage to be used for the test shall be agreed between the interested parties.

5 SPECIMENS FROM PRODUCTION ARTICLES

5.1 Specimens shall be taken only from flat areas of enamelled articles. If the specimens are not protected by at least a ground coat enamel on the reverse side and if the loss in mass per unit area of the enamel coating is to be determined quantitatively, the specimens shall be tested over a time of not more than 48 h.

5.2 Before cutting off the specimens, the enamel shall be removed along the cutting surface on both sides of the metal by means of grinding. The width of the zone from which the enamel is to be removed is determined by the width of the cutting tool and an extra margin of 2 mm for safety.

NOTE — Grinding machines are suitable for grinding off the enamel, where silicon carbide stones, corundum stones or diamond stones are applied.

5.3 Specimens exceeding 200 g may require special weighing equipment, otherwise the degree of accuracy may be impaired.