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STANDARD

**ISO**  
**2723**

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

**iTeh STANDARD PREVIEW**

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*Émaux vitrifiés pour tôles d'acier — Fabrication des échantillons pour essai*

ISO 2723:1995

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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 2723 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 6, *Vitreous and porcelain enamels*.

This second edition cancels and replaces the first edition (ISO 2723:1973), which has been technically revised.

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

## 1 Scope

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 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreement based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2746:—<sup>1)</sup>, *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 mm ± 2 mm or a side length of 105 mm ± 5 mm.

NOTE 1 The mass of specimens prepared according to this International Standard is generally less than 200 g.

## 4 Production of specially prepared specimens

### 4.1 Specification of specimen

The sheet steel upon which the enamel is applied shall be of enamelling quality steel, the thickness of which shall be between 1 mm 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 or, in the case of a square plate, 3 mm from the corner, 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 on to both sides of the specimen so that an agreed coating thickness is applied.

1) To be published. (Revision of ISO 2746:1973)

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 mm 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 thickness 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 2 Grinding machines are suitable for grinding off the enamel, where silicon carbide stones, corundum stones or diamond stones are applied.

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