INTERNATIONAL STANDARD

ISO 2734

Third edition
1997-07-01

Vitreous and porcelain enamels — Apparatus for testing with alkaline liquids

Émaux vitrifiés — Appareil pour essai avec des liquides alcalins

Reference number
ISO 2734:1997(E)

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 2734 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 6, *Vitreous and porcelain enamels*.

This third edition cancels and replaces the second edition (ISO 2734:1983), which has been technically revised.

Annex A of this International Standard is for information only.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

Vitreous and porcelain enamels — Apparatus for testing with alkaline liquids

1 Scope

This International Standard specifies the apparatus to be used for testing the resistance of flat surfaces of vitreous and porcelain enamels to attack by hot aqueous alkaline solutions such as solutions of sodium hydroxide.

2 Normative references

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

ISO 48:1994, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD).*

ISO 683-13:1986, *Heat-treatable steels, alloy steels and free-cutting steels — Part 13: Wrought stainless steels.*

3 General description

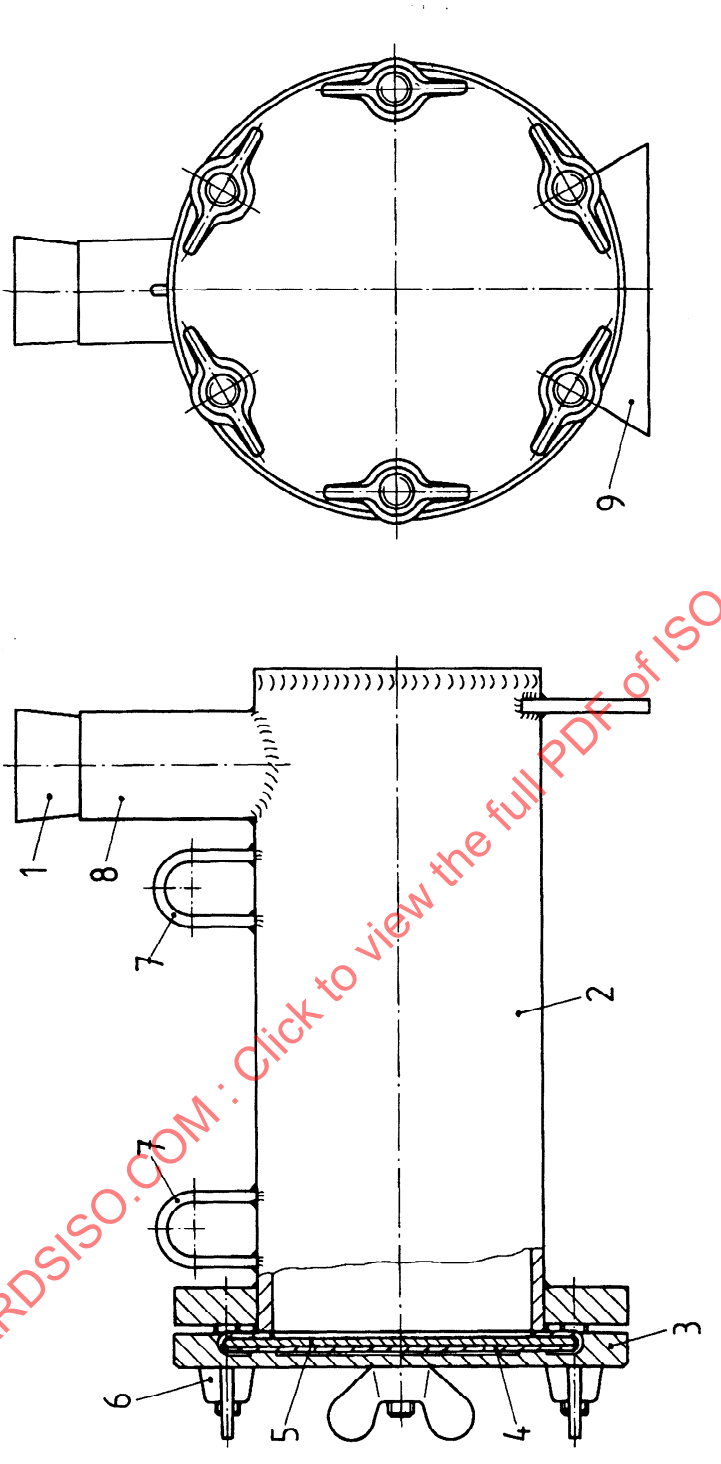
The testing apparatus (see figure 1) consists of a cylinder (4.1) and welded-on elements (see 4.1).

The cylinder (4.1) is sealed by the flange plate (4.2) and a specimen which is enclosed in a protective envelope (4.3) and put between the cylinder and the flange plate. The flange plate is fastened to the flange by means of six wing nuts (4.4). The filling nozzle is closed with a stopper (4.5).

The height of the foot depends on the outer diameter of the flange wheel. It shall be placed in a way that the surface of the test specimen is totally covered by the liquid if the test apparatus is filled with 1 l of the test solution and placed on a plane surface.

When the test solution is hot, the apparatus is used in conjunction with a thermostatically controlled liquid bath which is in accordance with the International Standard for the test method.

NOTE 1 For the test method for the determination of resistance to hot sodium hydroxide, see ISO 2745.



Key

1 Stopper
2 Cylinder
3 Flange plate
4 Protective envelope
5 Test specimen
6 Wing nut
7 Lifting rings
8 Filling nozzle
9 Foot

Figure 1 — Apparatus

4 Requirements

4.1 Cylinder, with the following welded-on elements as shown in figure 2:

— a plate on one end;

— a flange with six welded-on screw bolts at the other end;

— a foot opposite to the flange;

— two lifting rings;

— a filling nozzle.

All surfaces of the cylinder shall be of bare metal and all edges shall be deburred.

4.2 Flange plate, as shown in figure 3.

All surfaces of the flange plate shall be bare metal and all edges shall be deburred.

4.3 One protective envelope, as shown in figure 4.

NOTE 2 The rubber and the circular dam usually have a thickness of 2 mm. Other dimensions of the thickness may be used because they are not essential for the function of the protective envelope.

4.4 Six wing-nuts with threads fitting the screw bolts of the cylinder (4.1).

4.5 Stopper, as shown in figure 5.

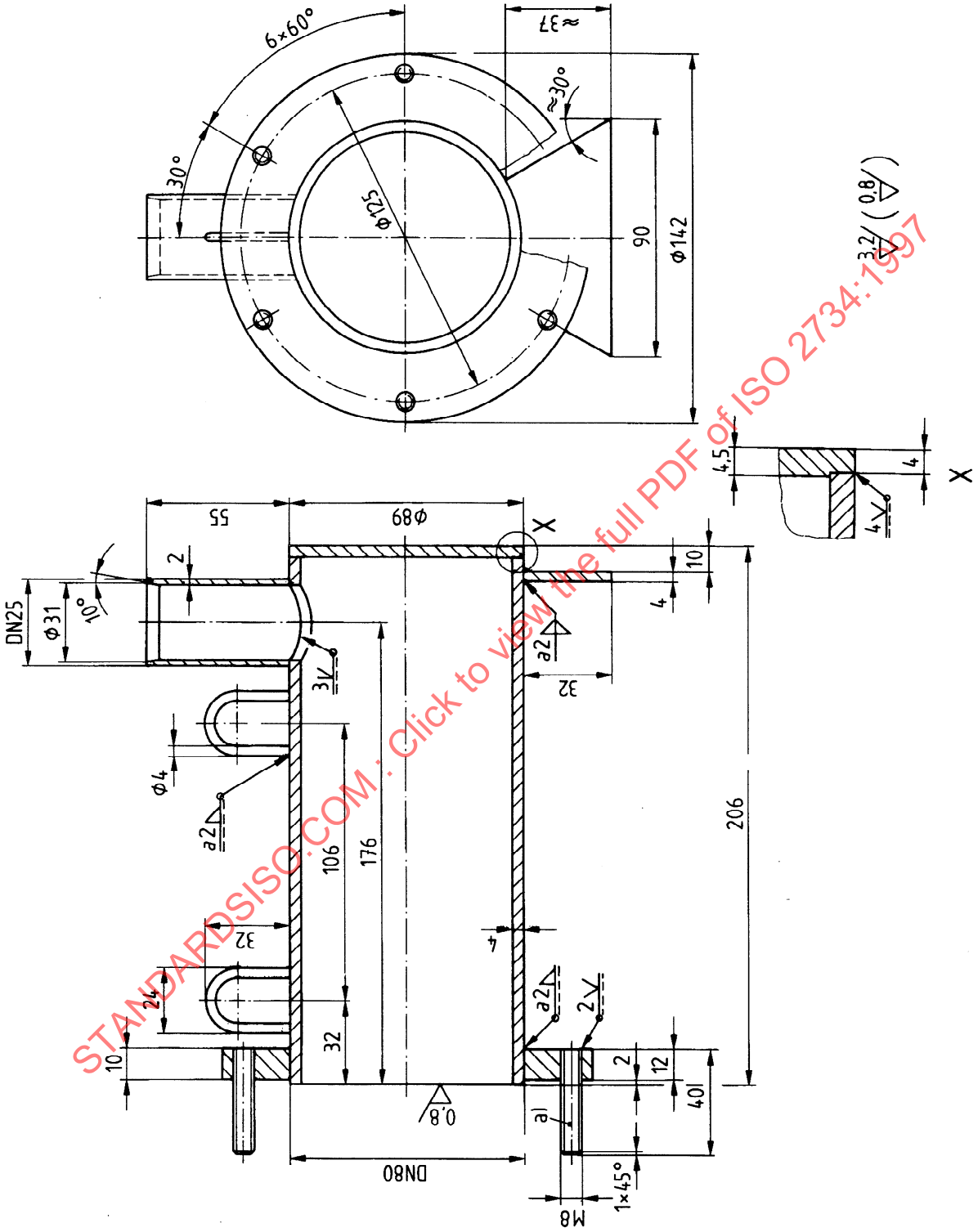
5 Materials

5.1 All parts of the testing apparatus excepting the protective envelope (4.3) and the stopper (4.5) shall be made of the same stainless steel, for example stainless steel type 21[1)] complying with the requirements of ISO 683-13.

5.2 The protective envelope (4.3) and the stopper (4.5) shall be made of a synthetic rubber of hardness 70 IRHD when determined in accordance with ISO 48. The material shall be resistant to alkaline solutions at 100 °C (chloroprene rubber (CR) is suitable for example).

1) The main constituents of steel type 21 are 17 % Cr, 12 % Ni, 2 % Mo, max. 0,08 % C and an addition of Ti.

Dimensions in millimetres



a) Screw bolts drawn six times on the circumference and spaced at 60°.

Figure 2 — Cylinder

Dimensions in millimetres

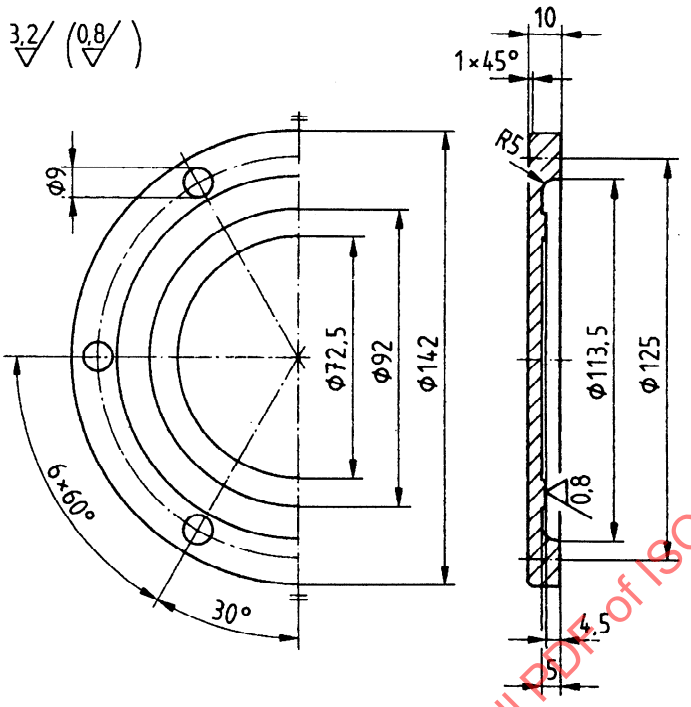


Figure 3 — Flange plate

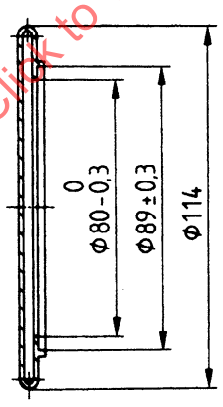


Figure 4 — Envelope

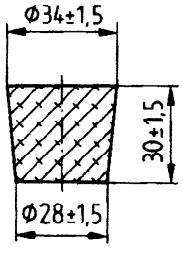


Figure 5 — Stopper

Annex A
(informative)

Bibliography

[1] ISO 2745:—[2], *Vitreous and porcelain enamels — Determination of resistance to hot sodium hydroxide.*

[2] LORENTZ, R. Korrosion von Chemieemail in alkalischen Lösungen [Corrosion of chemical service glass-enamel in alkaline solutions]. *Werkstoffe und Korrosion.* 1986 (vol. 37), pp. 567-578.

2) To be published. (Revision of ISO 2745:1973)

This page intentionally left blank