

(PREVIEW)

Indian Standard

METHODS OF TEST FOR
VITREOUS ENAMELWARE

PART I PRODUCTION OF SPECIMENS FOR TESTING

Section I Enamelled Sheet Steel

0. FOREWORD

0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 27 December 1982, after the draft finalized by the Ceramicware Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard was first issued in 1968. However, keeping in view the experience gained during the years and various International Standards brought out by the International Organization for Standardization (ISO) on the subject of testing vitreous enamels and enamelware, the Committee responsible for the preparation of this standard decided to revise it with a view to updating the existing methods of test and by incorporating those not covered earlier. The revised standard now comprises of two parts. Part I covers the production of specimen for testing enamelled sheet steel and cast iron, and Part II will cover various test methods. The Committee also decided to prepare a separate standard to deal with enamelled cast iron.

0.3 For testing both vitreous enamels and enamelware, either whole articles may be taken as specimen or portions may be cut out of them as specimens. Where this is not possible or when the loss in mass per unit area of the enamel coating is to be determined quantitatively, specimens may have to be prepared specially (*see 4*) as the specimens cut from enamelled articles (*see 5*) may reduce the accuracy. Accordingly, in this standard (Part I) details have been given for the production of specially prepared specimens and also for cutting specimens for production articles.

1. SCOPE

1.1 This standard (Part I) specifies methods for the production of specimens suitable for testing vitreous enamels for sheet steel and enamelled sheet steel articles.

2. TERMINOLOGY

2.1 For the purpose of this standard the definitions given in IS : 2717-1979* shall apply.

3. SHAPE AND DIMENSIONS OF SPECIMENS

3.1 The specimens shall be flat, enamelled, circular, square or rectangular plate of steel sheet of a suitable diameter or side length or as required in specific test method not exceeding 110 mm.

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

4. PRODUCTION OF SPECIALITY PREPARED SPECIMENS

4.1 **Materials** — The sheet steel, upon which enamel is applied, shall be of low carbon quality, having carbon content (as C) not exceeding 0.08 percent by mass. The enamelling quality steel is preferable for the purpose, but in absence of it cold rolled closed annealed type of steel may be used.

NOTE — 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 Procedure

4.2.1 *Regular Enamels for Sheet Steel* — Prepare the metal for enamelling by any one of the recognized procedures, but use the same procedure and materials for preparing specimens for comparison.

4.2.1.1 Apply ground coat by dipping, or spraying, on both sides of the specimen so that an agreed thickness of coating is obtained.

4.2.1.2 After drying, fusing and cooling of the specimen, apply the cover coat on to one side only. For ensuring that there is a minimum of build-up around the edge of the specimen, suitably wipe the applied enamel from the edges to a width of 2 or 3 mm after drying and then fuse.

NOTE — 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.

*Glossary of terms relating to vitreous enamelware and ceramic-metal systems (*first revision*).