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Dense shaped refractory products — Determination of resistance to sulfuric acid

Produits réfractaires façonnés denses — Détermination de la résistance à l'acide sulfurique

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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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8890 was prepared by Technical Committee ISO/TC 33, *Refractories*.

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Dense shaped refractory products — Determination of resistance to sulfuric acid

1 Scope and field of application

This International Standard specifies a method for determining the resistance of dense shaped refractory products to attack by sulfuric acid.

NOTE — Sulfuric acid is used since it gives results which are typical of the results of exposing refractory materials to many acids other than hydrofluoric acid.

2 References

ISO 383, *Laboratory glassware — Interchangeable conical ground joints.*

ISO 565, *Test sieves — Woven metal wire cloth and perforated plate — Nominal sizes of apertures.*

ISO 1770, *Solid-stem general purpose thermometers.*

ISO 1773, *Laboratory glassware — Boiling flasks (narrow-necked).*

ISO 4799, *Laboratory glassware — Condensers.*

ISO 5022, *Shaped refractory products — Sampling and acceptance testing.*

3 Principle

The test sample, crushed in a specified manner, is subjected for 6 h to attack by 70 % (m/m) boiling sulfuric acid, and the resultant mass loss is determined and expressed as a percentage of the initial mass of the dry material.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Suitable mechanical crushing device, preferably not steel.

4.2 Woven metal wire cloth sieve, 0,80 mm aperture, conforming to the requirements of ISO 565 (supplementary size list).

4.3 Woven metal wire cloth sieve, 0,63 mm aperture, conforming to the requirements of ISO 565 (supplementary size list).

4.4 Balance, capable of weighing 25 g to the nearest 0,001 g.

4.5 Round-bottomed flasks, of capacity 500 ml (see ISO 1773), each with a short, narrow neck, equipped with a ground glass stopper (see ISO 383) for the insertion of a thermometer.

4.6 Coil condensers, of length 250 mm, having at least 16 turns in the coil (see ISO 4799).

4.7 Immersion thermometers (length approximately 110 mm) (see ISO 1770).

4.8 Sand bath or oil bath.

4.9 Porcelain filter crucible.

4.10 Thermostatically controlled oven, capable of maintaining a temperature of 110 ± 5 °C.

5 Reagents

During the test, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 Sulfuric acid, 70 % (m/m), $\rho_{15} = 1,615$ g/cm³.

5.2 Barium chloride, 50 g/l solution.

6 Test samples

6.1 The number of samples to be taken shall be in accordance with ISO 5022 or with another standard sampling plan.

6.2 From each sample, take two pieces of a total mass of approximately 250 g, one from the centre and one from an edge.