INTERNATIONAL STANDARD

ISO 1927-4

First edition
2012-12-01

Monolithic (unshaped) refractory products —

Part 4: Determination of consistency of castables

Produits réfractaires monolithiques (non façonnés) —

Partie 4: Détermination de la consistance des bétons

Reference number
ISO 1927-4:2012(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 1927-4 was prepared by Technical Committee ISO/TC 33, *Refractories*.

ISO 1927 consists of the following parts, under the general title *Monolithic (unshaped) refractory products*:

— *Part 1: Introduction and classification*

— *Part 2: Sampling for testing*

— *Part 3: Characterization as received*

— *Part 4: Determination of consistency of castables*

— *Part 5: Preparation and treatment of test pieces*

— *Part 6: Measurement of physical properties*

— *Part 7: Tests on pre-formed shapes*

— *Part 8: Determination of complementary properties*

Monolithic (unshaped) refractory products —

Part 4:
Determination of consistency of castables

1 Scope

This part of ISO 1927 describes methods for the determination and measurement of the consistency of dense and insulating castables as defined in ISO 1927-1. It is applicable to all types of dense regular castables, dense deflocculated castables and insulating castables to determine the liquid addition necessary for preparing test pieces according to ISO 1927-5.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1927-1, *Monolithic* (*unshaped) refractory products — Part 1: Introduction and classification*

ISO 1927-5:2012, *Monolithic* (*unshaped) refractory products — Part 5: Preparation and treatment of test pieces*

3 Principle

The amount of water used in a castable mix for preparing test pieces has a significant influence on the test results. Excess water can reduce strength, increase shrinkage, and can cause sedimentation. Insufficient moisture can give voids due to poor compaction, with subsequent lower density and strength.

This part of ISO 1927 describes three different methods for determining the consistency according to the type of material:

a) determination of the consistency of insulating castables containing significant amounts of light-weight aggregates such as vermiculite or perlite which would be destroyed by intensive mixing; such products are normally installed by pouring, rodding, tamping;

b) determination of the consistency of all types of vibratable castables;

c) determination of the consistency of self-flowing castables.

To obtain reproducible results, the following factors are closely controlled:

— wet mixing time;

— batch size, which is chosen for the required number of determinations (e.g. if determination of working time is required), and is also related to mixer pan size or bowl;

— mixer pan size adapted to batch weight to have at least 50 % and a maximum of 75 % volume loading by the dry batch;

— temperature (of the water, castable and mix and ambient temperature), of 18 °C to 22 °C for consistency and working time determination;

— quantity of water addition used in the test which is rapidly affected when the dry volume loading of the mixer pan drops below 50 % of the total dry capacity, due to the increased metal surface to be wetted;