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**Carbonaceous materials used in the  
production of aluminium — Cold-ramming  
pastes — Methods of sampling**

*Produits carbonés utilisés pour la production de l'aluminium — Pâtes de  
brasquage à froid — Échantillonnage*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14422 was prepared by Technical Committee ISO/TC 47, *Chemistry*, Subcommittee SC 7, *Aluminium oxide, cryolite, aluminium fluoride, sodium fluoride, carbonaceous products for the aluminium industry*.

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# Carbonaceous materials used in the production of aluminium — Cold-ramming pastes — Methods of sampling

## 1 Scope

This International Standard describes methods and conditions for sampling of cold-ramming pastes used in aluminium manufacture.

## 2 Normative reference

The following normative document contains provisions which, through reference in this text, constitutes provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6257, *Carbonaceous materials used in the production of aluminium — Pitch for electrodes — Sampling.*

## 3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 6257 and the following apply.

### 3.1

#### **cold-ramming paste**

mixture containing graded carbonaceous aggregate and bonding materials which harden when heated to form a carbonaceous bond

**NOTE** Such a mixture needs to be installed at or near ambient temperature by the use of mechanical or pneumatic tools or vibration.

### 3.2

#### **increment**

amount of material taken from a sample unit in a single operation with a sampling device

### 3.3

#### **test portion**

amount of material taken from the laboratory sample and prepared in a manner suitable for use in a particular determination

### 3.4

#### **sample unit**

#### **item**

defined quantity of material having a boundary

**NOTE 1** The boundary may be physical, for example a container, or temporal, for example a particular time or time interval in the case of a stream of material.

NOTE 2 A number of sample units may be gathered together, for example in a package or box.

NOTE 3 In English, the terms "item", "unit" and "individual" are sometimes used as synonyms for "sample unit". In French, the term "individu" is sometimes used as a synonym for "unité d'échantillonnage".

## 4 General

The type of sampling equipment, and the preparation and reduction of the samples, which should not alter the properties to be determined, shall be agreed between the contracting parties.

When sampling material in movement, do so during loading or unloading of the consignment or while packaging units are being filled (see 6.4.5).

During sampling, sample division, and the preparation and storage of samples, protect the samples from any factors which may cause changes in the properties to be determined.

If required, subdivide the consignment into individual test lots (for example, if it is clear that the consignment consists of various lots or is to be treated in separate partial quantities).

Distribute the increments over the entire consignment and take them at regular ponderal or temporal intervals which do not vary throughout the duration of one sampling procedure. In addition, divide the consignment by mass and time into as many intervals as there are increments to be taken. Initial sampling is performed at a moment chosen at random within the first interval.

NOTE The term "ponderal" describes fixed intervals of mass.

## 5 Apparatus

Ensure that sample containers, sampling equipment and any ancillary equipment likely to come into contact with the product being sampled are clean and dry.

**5.1 Quartering cross**, of metal or other rigid impermeable material, with four blades joined together at the centre at right angles to each other. The height of the blades forming the cross shall be greater than that of the flattened conical pile of material on which it is used (see 6.4.2), and the length of the individual blades shall be greater than the radius of the flattened cone.

**5.2 Sampling scoop**, with an internal width at least six times the estimated size of the largest particles in the product to be sampled, and capable of containing the required minimum mass of an increment (see Table 1).

Table 1 — Minimum mass of increment

Maximum grain size mm	Minimum mass of increment g
20	2 000 ± 200
10	500 ± 50
3	200 ± 20
1	50 ± 5