

International Standard



6998

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**Carbonaceous materials for the production of aluminium — Pitch for electrodes — Determination of coking value**

*Produits carbonés utilisés pour la production de l'aluminium — Brai pour électrodes — Détermination du résidu de cokéfaction*

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## Foreword

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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.

International Standard ISO 6998 was developed by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the member bodies in August 1982.

It has been approved by the member bodies of the following countries :

Australia	India	Romania
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Canada	Korea, Dem. P. Rep. of	Spain
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No member body expressed disapproval of the document.

# Carbonaceous materials for the production of aluminium — Pitch for electrodes — Determination of coking value

## 1 Scope and field of application

This International Standard specifies a method for determination of the coking value of pitches used for the production of aluminium.

## 2 References

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

ISO 5725, *Precision of test methods — Determination of repeatability and reproducibility by inter-laboratory tests.*

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

## 3 Principle

Heating of a test portion under defined conditions at  $550 \pm 10$  °C and weighing the coke residue.

## 4 Material

Calcined petroleum coke, sieved.

Use the fraction which passes a 1 mm mesh sieve and is retained by a 212  $\mu\text{m}$  mesh sieve (see ISO 565).

## 5 Apparatus

Ordinary laboratory apparatus and

**5.1 Porcelain crucibles**, tall form, of capacity approximately 50 ml, fitted with overlapping lids.

**5.2 Nickel crucibles**, of capacity approximately 130 ml, height 60 mm and diameter 60 mm, fitted with lids.

**5.3 Stainless steel wire supports** (see figure 1), to locate the porcelain crucibles (5.1) correctly in the nickel crucibles (5.2) and allowing a separation of  $10 \pm 1$  mm between the bases of each crucible.

**5.4 Support for the nickel crucibles** (see figure 2), made from 1 mm thick stainless steel plate, which contains four holes. The support is bent over the edges, welded at the corners and fitted with four welded legs which allow, when holes are used to nest the nickel crucibles, to hold its bottom at least 7 mm above the base of the furnace.

The support is intended for four determinations (two duplicate determinations), but for reference testing, only two of the holes should be used.

**5.5 Sieves**, of 1 mm, 300  $\mu\text{m}$  and 212  $\mu\text{m}$  nominal mesh size (see ISO 565).

**5.6 Electric furnace**, capable of being controlled at  $550 \pm 10$  °C.

## 6 Sampling and sample

### 6.1 Sampling

Sampling should be carried out according to the procedure specified in ISO 6257.

### 6.2 Preparation of test sample

If the sample is sufficiently hard, crush with a small jaw crusher and grind it in a mortar to pass at least a 300  $\mu\text{m}$  mesh sieve and, if possible, a 212  $\mu\text{m}$  mesh sieve. If the ambient temperature is high, the operation will be facilitated by chilling the sample beforehand.

If the pitch is too soft to crush, melt the sample and take sufficient of the molten mass for the test. The melting temperature shall not exceed 150 °C and the melting period shall not exceed 10 min. It is also possible to transfer the required portion of a soft pitch directly to the porcelain crucible, without preliminary treatment.

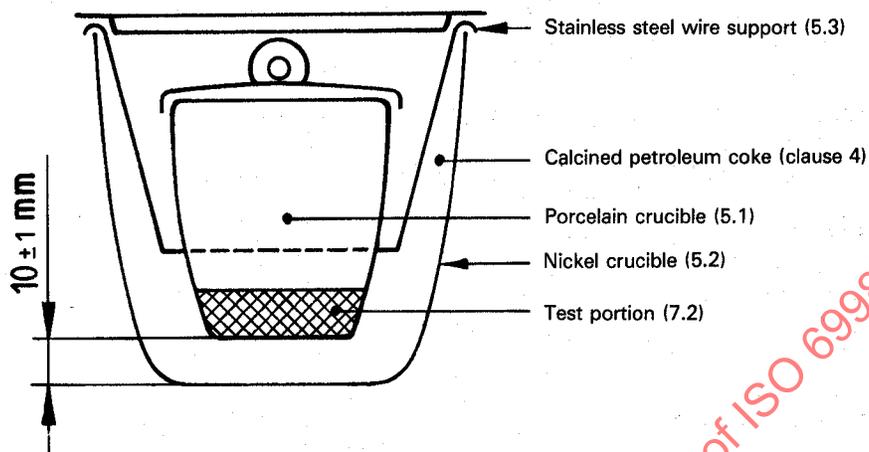


Figure 1 — Assembly of nickel and porcelain crucibles

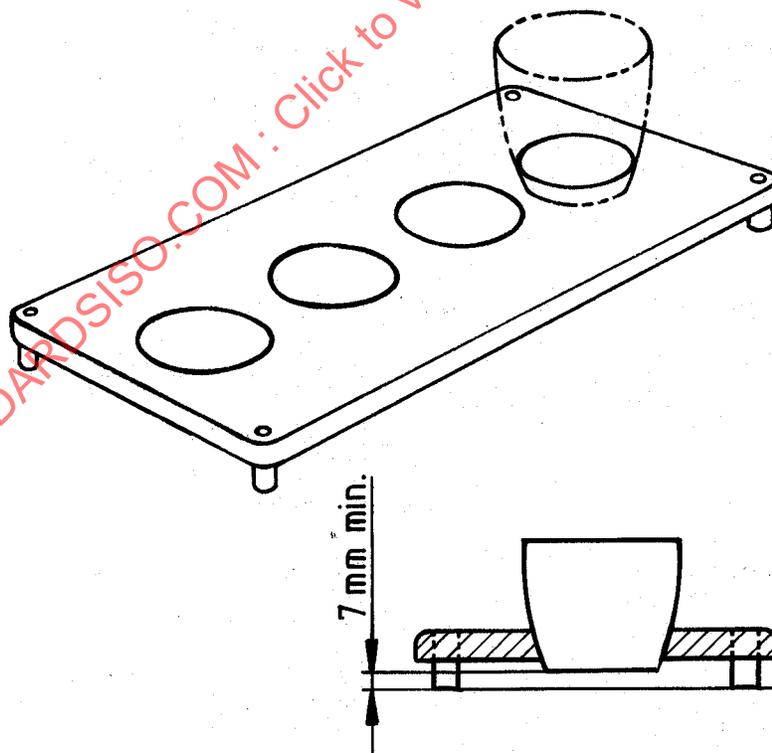


Figure 2 — Support for nickel crucibles