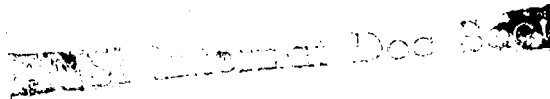


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# International Standard 8220

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## Aluminium oxide primarily used for the production of aluminium — Determination of the fine particle size distribution (less than 60 $\mu\text{m}$ ) — Method using electroformed sieves

*Oxyde d'aluminium principalement utilisé pour la production de l'aluminium — Détermination de la distribution granulométrique fine (inférieure à 60  $\mu\text{m}$ ) — Méthode par emploi de tamis électroformés*

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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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8220 was prepared by Technical Committee ISO/TC 47, *Chemistry*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Aluminium oxide primarily used for the production of aluminium — Determination of the fine particle size distribution (less than 60 µm) — Method using electroformed sieves

## 1 Scope and field of application

This International Standard specifies a method for the determination of the particle size distribution (less than 60 µm) of aluminium oxide primarily used for the production of aluminium, using electroformed sieves.

NOTE — There is no correlation, for the calcined alumina, between the results obtained with the square-aperture and the round-aperture electroformed sieves.

The use of either kind of sieve should be clearly indicated in the compilation of the test report, as well as in the agreement protocols between suppliers and purchasers if the particle size distribution is indicated in the contract.

## 2 References

ISO 802, *Aluminium oxide primarily used for the production of aluminium — Preparation and storage of test samples.*

ISO 803, *Aluminium oxide primarily used for the production of aluminium — Determination of loss of mass at 300 °C (conventional moisture).*

ISO 3310/2, *Test sieves — Technical requirements and testing — Part 2 : Test sieves of metal perforated plate*

## 3 Principle

Quantitative separation by sieving of the particles in the range 63 to 16 µm suspended in an aqueous solution of a dispersing agent.

The sieves are square-aperture or round-aperture electroformed sieves, depending on their origin.

Drying and weighing of each sieved fraction.

## 4 Reagents and materials

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

**4.1 Sodium hexametaphosphate** [(NaPO<sub>3</sub>)<sub>6</sub>], 1 g/l solution.

**4.2 Surface active agent**, non-ionic polyethoxyl, saturated solution.

## 5 Apparatus

Ordinary laboratory apparatus and

**5.1 Agitation device**, for the slow oscillation of the sieves (5.2) placed on a support, driven by a motor equipped with reduction gear and cam, capable of shaking the sieves with a frequency of 1 Hz and 10 mm amplitude.

A schematic drawing is shown in the figure.

**5.2 Set of electroformed sieves**, of maximal dimensions 75 mm (available diameter 65 mm), mounted on stainless steel frames and fitted with a cloth for supporting the electroformed membrane. The sizes of the apertures shall be 63 — 45 — 32 — 16 µm. The tolerances shall be those required by ISO 3310/2.

NOTE — Electroformed sieves of 80 and 100 µm are available. They may be used with test portions of about 2 g.

**5.3 Adjustable-height supports.**

**5.4 Crystallization vessels**, made of glass, diameter approximately 125 mm, height approximately 65 mm.

**5.5 Funnel**, made of polyethylene, diameter about 90 mm.

**5.6 Vacuum device.**

**5.7 Ultrasonic cleaner**, (maximum power : 100 W).

**5.8 Electric oven**, capable of being controlled at 110 ± 2 °C.

**5.9 Desiccator**, containing activated alumina or other suitable desiccant.