INTERNATIONAL STANDARD

ISO 23201

First edition
2015-11-15

Aluminium oxide primarily used for production of aluminium — Determination of trace elements — Wavelength dispersive X-ray fluorescence spectrometric method

Oxyde d'aluminium utilisé pour la production d'aluminium — Détermination d'éléments traces — Spectrométrie de fluorescence des rayons X par dispersion en longueur d'onde

Reference number
ISO 23201:2015(E)

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 226, *Materials for the production of primary aluminium*.

Introduction

This International Standard is based on Australian Standard AS 2879.7–1997, *Alumina — Determination of trace elements — Wavelength dispersive X-ray fluorescence spectrometric method*, developed by the Standards Australia Committee on Alumina and Materials used in Aluminium Production to provide an XRF method for the analysis of alumina.

The objective of this International Standard is to provide those responsible for the analysis of smelting-grade alumina with a standardized, validated procedure that will ensure the integrity of the analysis.

Aluminium oxide primarily used for production of aluminium — Determination of trace elements — Wavelength dispersive X-ray fluorescence spectrometric method

1 Scope

This International Standard sets out a wavelength dispersive X-ray fluorescence spectrometric method for the analysis of aluminium oxide for trace amounts of any or all of the following elements: sodium, silicon, iron, calcium, titanium, phosphorus, vanadium, zinc, manganese, gallium, potassium, copper, chromium and nickel. These elements are expressed as the oxides Na_2O, SiO_2, Fe_2O_3, CaO, TiO_2, P_2O_5, V_2O_5, ZnO, MnO, Ga_2O_3, K_2O, CuO, Cr_2O_3, and NiO on an un-dried sample basis.

The method is applicable to smelting-grade aluminium oxide. The concentration range covered for each of the components is given in Table 1.

Table 1 — Applicable concentration range

Component	Concentration range %		
Na_2O	0,10	to	1,00
SiO_2	0,003	to	0,05
Fe_2O_3	0,003	to	0,05
CaO	0,003	to	0,10
TiO_2	0,000 5	to	0,010
P_2O_5	0,000 5	to	0,050
V_2O_5	0,000 5	to	0,010
ZnO	0,000 5	to	0,010
MnO	0,000 5	to	0,010
Ga_2O_3	0,000 5	to	0,020
K2O	0,000 5	to	0,010
CuO	0,000 5	to	0,010
Cr_2O_3	0,000 5	to	0,010
NiO	0,000 5	to	0,010

2 Normative references

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

AS 2563, *Wavelength dispersive X-ray fluorescence spectrometers — Determination of precision*

AS 2706, *Numeric values — Rounding and interpretation of limiting values*

AS 4538.1-1999 (R2013), *Guide to the sampling of alumina — Sampling procedures*

AS 4538.2-2000 (R2013), *Guide to the sampling of alumina — Preparation of samples*