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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6609.22-2004

**Chemical analysis methods and determination of physical
performance of alumina -- Sampling
(English Translation)**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

This document is Part 22 of GB/T 6609 "Chemical analysis methods and determination of physical performance of alumina". GB/T 6609 has issued the following parts.

- Part 1.Determination of trace elements content - Inductively coupled plasma atomic emission spectrometry method;
- Part 2.Determination of loss of mass at 300 °C and 1000 °C;
- Determination of silicon dioxide content - Molybdenum blue photometric method;
- Determination of ferric oxide content - Orthophenanthroline photometric method;
- Part 5.Determination of sodium oxide and potassium oxide contents;
- Part 7.Determination of titanium dioxide, chromium sesquioxide, cupric oxide, fluorine, chlorine, boron trioxide, phosphorus pentoxide, sulfate contents - Spectrophotometry method;
- Determination of vanadic oxide content - N-benzoyl-N-phenylhydroxylamine extraction photometric method;

- Part 11.Determination of manganese oxide and magnesium oxide contents - Flame atomic absorption spectrometric method;
 - Part 12.Determination of zinc oxide content - Flame atomic absorption spectrometry method;
 - Part 13.Determination of calcium oxide content - Flame atomic absorption spectrometric method;
 - Part 19.Determination of lithium oxide content - Flame atomic absorption spectrometry method;
 - Determination of gallium trioxide content - Butyrdamine B spectrophotometric method;
 - Part 22.Sampling and preparation of test samples;
 - Part 24.Measurement of the angle of repose and the angle of flow;
 - Part 25.Method for the determination of tapped and untapped density;
- Chemical analysis methods and determination of physical performance of alumina - Part 22.Sampling and preparation of test samples

1 Scope

This document describes the sampling, preparation, and storage methods for original and dried alumina test samples used for composition analysis and determination of physical properties of alumina.

This document applies to sampling and preparation of test samples of alumina during processes such as transportation (e.g., when conveyed by conveying machinery), loading and unloading (e.g., when unloaded into containers, silos, or warehouses), and continuous flow.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

batch sample

A collection of samples taken from a batch of products for testing.

3.2

incremental sample

Each sample taken individually when taking the batch sample.

NOTE: It is a constituent part of the batch sample.

4 Method overview

A constant amount of sample is taken in multiple portions by manual or mechanical means. The sample retains its physical and chemical properties at the time of sampling. The sample is mixed and divided to meet the requirements for laboratory testing. The sample is stored and transported in sealed containers at room temperature.

5.1 Sampling apparatus. Manual or mechanical sampling apparatus, such as an Archimedes screw, inclined chute, or probe.

5.6 Test sieve. Aperture size 0.125 mm. Made of a material that will not introduce the

impurities to be tested. The test sieve shall be selected based on the properties of alumina and the impurities to be tested.

6.1.1 Quantity of incremental samples

At intervals of 4 h, take one incremental sample at the cross-section of the material surface, not less than 1 kg.

6.1.2.1 Before sampling, take three trial samples using the sampling apparatus (5.1),

then discard the obtained samples and clean any residual samples inside the sampling apparatus.

6.1.2.2 Samples shall be taken from the cross-section of continuously flowing material.

If mechanical sampling is used, it shall ensure that there are no other samples in the sample container (5.2). During sampling intervals, prevent dust from entering the sample container.

6.2.1 Quantity of batch samples and incremental samples

Take 4 samples when the volume is less than 40 m³; take 1 sample when the volume is between 40 m³ and 100 m³; take 10 samples when the volume is greater than 100 m³. Each sample shall be not less than 1 kg.

6.2.2.1 Sampling shall be carried out during normal unloading, taking equal quantities

of sample at regular time intervals.

6.2.2.2 If mechanical sampling is used, it shall ensure that there are no other samples in

the sample container (5.2). During the sampling process, prevent dust from entering the sample container.

6.3 Sampling from material piles such as ton bags, tank trucks, ship holds, and containers

6.3.1.1 When sampling from ton bags, a batch shall not exceed 2000 t, take 20 samples

from each batch, each not less than 0.5 kg.

6.3.1.2 When sampling from tank trucks, take at least 2 samples from each truck, each

not less than 1 kg.

100 m³, take 10 samples from each batch, each not less than 1kg; if the pile volume

exceeds 100 m³, take 15 samples from each batch, each not less than 1 kg.