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

GB/T 6609.33-2009

**Chemical analysis methods and determination of physical
performance of alumina -- Part 33: Determination of attrition
index**

氧化铝化学分析方法和物理性能测定方法 第33部分：磨损指数的测定

(English Translation)

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Foreword

GB/T 6609 "alumina chemical analysis methods and determination of physical performance" is divided into 37 parts.

- Part 1. Inductively coupled plasma atomic emission spectrometry Determination of trace elements;
- Part 2. Determination of 300 °C and 1000 °C mass loss;
- Part 3. molybdenum blue spectrophotometric determination of silicon dioxide content;
- Part 4. phenanthroline spectrophotometric determination of ferric oxide content;
- Part 5. Determination of sodium oxide content;
- Part 6. flame photometric determination of potassium content;
- Part 7. Determination of titanium dioxide content of the two safety for DAM spectrophotometry;
- Part 8. diphenyl carbon acid dihydrazide spectrophotometric determination of chromium oxide content;
- Part 9. neocuproine spectrophotometric determination of copper oxide content;
- Part 10. benzoyl phenylhydroxylamine extraction spectrophotometric determination of the content of vanadium pentoxide;
- Part 11. Flame atomic absorption spectrometric method for the determination of manganese oxide content;
- Part 12. Flame Atomic Absorption Spectrometry Determination of zinc oxide content;
- Part 13. Flame atomic absorption spectrometric method for the determination of calcium oxide content;
- Part 14. lanthanum - alizarin complex spectrophotometric determination of fluorine

content;

- Part 15. Rhodanate spectrophotometric determination of chlorine content;
- Part 16. Determination of curcumin boron trioxide content;
- Part 17. molybdenum blue spectrophotometric determination of phosphorus pentoxide content;
- Part 18. N, N- dimethyl-p-phenylenediamine spectrophotometric determination of sulfate content;
- Part 19. Flame atomic absorption spectrometry determination of lithium oxide content;
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- Part 21. Butyl Rhodamine B spectrophotometric determination of gallium oxide content;
- Part 22. Sampling;
- Part 23. sample preparation and storage;
- Part 24. Determination of angle of repose;
- Part 25. Determination of bulk density;
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- Part 27. Particle size analysis by sieving;
- Part 28. less than 60µm fine powder particle size distribution measuring wet screening;
- Part 29. Assay index;
- Part 30. Determination of trace elements X-ray fluorescence spectrometry;
- Part 31. Determination of flow angle;
- The first part 32. alpha- alumina Determination of X- ray diffraction method;
- Part 33. Determination of the abrasion index;
- Part 34. Calculation of the content of aluminum oxide;
- Part 35. specific surface area by nitrogen adsorption method;
- Part 36. Determination of the flow of time;
- Part 37. Determination of particle size less than 20µm particle content.

This is Part 33 GB/T 6609's.

The partial modification of the use of ISO 17500:2006 "for the determination of aluminum alumina production --- abrasion index." the partial modification of the use of ISO

17500:2006, it will be its preface, introduction deleted and normative references files with GB/T 6609.27 Instead of ISO 2926:2005. To facilitate comparison, are listed in Appendix B of this chapter and the corresponding part of the ISO 17500:2006 of the chapter Chart.

Appendix A of this section and Appendix B is an informative annex.

This part is proposed by the China Nonferrous Metals Industry Association.

The non-ferrous metal part by the National Standardization Technical Committee.

Drafting this Part. Aluminum Corporation of China Zhengzhou Research Institute, China Nonferrous Metals Industry Standards and Metrology Institute for Quality.

1 Scope

GB/T 6609 This section specifies the method for determination of alumina wear index.

This section applies to the determination of alumina wear index.

2 Normative references

The following documents contain provisions which, through reference to GB/T 6609 to the present, constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 6609.27 alumina chemical analysis methods and determination of physical performance - Part 27. Particle size analysis by sieving (GB/T 6609.27-2009, ISO 2926:2005, IDT) AS2879.6-1995 alumina mass distribution --- electronic screening method for the determination of grain size

3 PRINCIPLE OF THE METHOD

Use wear indexer, under controlled conditions, with a high velocity gas jet alumina samples to wear out, wear measurement sample Particle size distribution before and after. Attrition Index is under specific test conditions, quality of sample + 45 μ m part percentage before the abrasion test After the degree of reduction. Flow instruments available alumina standard samples for calibration.

4 Instrument

4.1

Attrition Index Instrument. As shown, a typical instrument 1, the constituent elements include.

4.1.1

Column. stainless steel, aluminum and glass column, height 1500mm ~ 1600mm, inner diameter of 25mm. To reduce dust adhesion, column an upper portion of an inner diameter slightly larger than the interface. One kind of the total length of 700mm and 64mm diameter upper portion of the column is also suitable. In any case, the tube Columns should be maintained above the minimum 200mm from the chassis opening at the inner diameter of 25mm. And these strings when assembled, the connection must be taken Smooth tapered transition form to ensure that the alumina column is not in residence at the interface. You can also install a timer for automatic string percussion device to facilitate the tapping column (see 6.2.5).

4.1.2

Orifice. The orifice plate is installed and sealed at the center of the bottom of the column, the central orifice having a diameter of $400\mu\text{m} \pm 15\mu\text{m}$ hole of hard gold Spp. A typical orifice plate 2 and the correct positioning of the orifice hole can cause small changes in the air flow changes through wear index alumina Calibration standard sample.

4.1.3

cleaning device. the installation of cleaning and sealing the top of the string.

4.1.4

airflow measurement and control equipment. air flow measuring and control equipment should include components, operating flow measurement and control airflow 5L/min ~ 8L/min, accurate to 0.1L/min.

4.2

Balance. a sense of the amount of 0.01g.

4.3

Particle Size Analyzer. electric forming screen and regulations in GB/T 6009.27 in the instrument. Alternative particle size analysis method, see 6.3.

4.4

Sample splitter. provide a representative sample, the rotary separator.

4.5

blowing gas. between 400kPa ~ 800kPa, can provide a stable pressure of dry air or nitrogen.

4.6

Container. can be sealed volume between 60mL ~ 125mL.