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Calibration Specification for Rotating Disc Electrode Atomic Emission Spectrometers

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(English Translation)

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Introduction

This specification is based on JJF 1001-2011 "General Metrology Terms and Definitions", JJF 1059.1-2012 "Measuring Determination Evaluation and Representation", JJF 1071-2010 "Rules for Compilation of National Metrology Calibration Specifications".

In the preparation process, reference was made to NB/SH/T 0865-2013 "Wear Metals and Contaminant Elements in Lubricating Oils in Service" Rotating disk electrode atomic emission spectrometry for element determination", ASTMD6595-2017 "In-use lubricating oil or hydraulic oil Determination of Medium Wear Metals and Contaminant Elements by Rotating Disk Electrode Atomic Emission Spectrometry (StandardTest ASTMD6728-2016 "Determination of Contaminant Element Content in Gas Turbine and Diesel Engine Fuel Rotating Disk Electrode the technical indicators, detection methods, etc.

This specification is published for the first time.

Specification for Calibration of Rotating Disk Electrode Emission Spectrometers

1 Scope

This specification applies to the calibration of rotating disk electrode emission spectrometers using a graphite electrode discharge to excite the sample.

2 Reference documents this specification references the following documents.

NB/SH/T 0865-2013 Determination of Rotating Disk Electrodes for Wear Metals and Contaminant Elements in Lubricating Oils Atomic Emission Spectroscopy for dated references, only the dated version applies to this specification; for undated references the latest version (including all amendments) applies to this specification.

3 Terminology

Terms and definitions defined in NB/SH/T 0865-2013 and the following apply to this specification.

Use a soft carbon material to be processed into the shape of a disk as the counter electrode of the arc/spark spectrometer.

in oil analysis.

3.2 Graphite rod electrode Use a soft carbon material machined into the shape of a rod as the counter electrode of an arc/spark spectrometer for Oil analysis.

3.3 Analysis gap the gap between the graphite disk electrode and the graphite rod electrode after being installed on the corresponding fixture of the rotating disk electrode emission spectrometer.

3.4 Optical tracing profiling Set the actual position of the entrance slit to obtain the best test intensity.

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4 Overview

The rotating disk electrode emission spectrometer (hereinafter referred to as the spectrometer) is to bring the sample to the stone through the rotation of the graphite disk electrode.

The analysis gap between the ink disk electrode and the graphite rod electrode is used to excite the sample by the high-voltage arc generated between the two electrodes.

The atom or ion of the element enters the excited state from the ground state, and the characteristic emitted when the atom or ion returns from the excited state to the ground state is detected.

It is an emission spectrometer that realizes the qualitative and quantitative analysis of each element in the sample. It is mainly used for the determination of various types of oils Wear metal and contaminant element content in the product.

The instrument is mainly composed of sampling unit, excitation unit, dispersion unit, detection unit, signal processing unit, display unit its structure is shown in Figure 1.

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