

JJF

**INDUSTRY STANDARD OF THE
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**Calibration Specification for Liquid
Chromatography-Inductively Coupled Plasma Mass
Spectrometers
(English Translation)**

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Introduction

This specification is based on JJF 1001-2011 "General Metrology Terms and Definitions", JJF 1071-2010 "National Metrology Calibration Specification Writing Rules and JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement write.

This specification mainly refers to JJG705-2014 "Liquid Chromatograph", JJF 1159-2006 "Quadrupole Inductively Coupled GB/T 32267-2015 "Terms for the determination of performance of analytical instruments" and GB/T 34826-

2017 Technical content related to "Method for determining the performance of quadrupole inductively coupled plasma mass spectrometer".

This specification is published for the first time.

Liquid chromatography-inductively coupled plasma mass spectrometry Instrument Calibration Specifications

1 Scope

This specification applies to the calibration of liquid chromatography-inductively coupled plasma mass spectrometry.

2 References

This specification references the following documents.

JJG705-2014 Liquid Chromatograph JJF 1159-2006 Calibration specification for quadrupole inductively coupled plasma mass spectrometer GB/T 32267-2015 Terminology for determination of performance of analytical instruments GB/T 34826-2017 Method for determination of performance of quadrupole inductively coupled plasma mass spectrometer for any referenced document with a date, only the version with the date is applicable to this specification; for any referenced document without a date, the latest version (including all amendments) shall apply to this specification.

3 Terminology and units of measurement the following terms and definitions defined in GB/T 32267-2015 and GB/T 34826-2017 apply to this specification.

3.1 Atomic mass unit the rest mass of a neutral atom of the nuclide ^{12}C in its ground state is $1/12$, denoted as u .

[Source. GB/T 32267-2015, 4.1]

3.2 Mass accuracy

The deviation between the mass of an ion measured by a mass spectrometer and the theoretical value.

[Source. GB/T 32267-2015, 4.5]

3.3 Oxide ion yield when an atom of an element is ionized in plasma, the oxide ion (MO) produced is related to the single charge of the element.

The ratio of ions (M) is expressed as MO/M.

[Source. GB/T 34826-2017, 3.3] the doubly charged ions (M₂) produced when atoms of an element are ionized in a plasma are the ratio of the two molecules (M) is expressed as M₂/M.

[Source. GB/T 34826-2017, 3.2]

3.5 Mass-charge ratio the ratio of the mass of an ion (m) to the number of charges it carries (z) is denoted as m/z.

[Source. GB/T 32267-2015, 4.6]

4 Overview

Liquid chromatography-inductively coupled plasma mass spectrometry (LC-ICP-MS, hereinafter referred to as the combined instrument) is a liquid