

JJF

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

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**Calibration specification of aerosol photometers
(English Translation)**

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1 Scope

This Specification applies to the calibration of light scattering principle aerosol photometers with a measurement range of (0.01~100) $\mu\text{g/L}$. The aerosol photometers with other measuring ranges can be calibrated with reference to this Specification.

2 Terms

PAO-4 aerosol

Aerosol refers to a colloidal dispersion system formed by solid or liquid small particles dispersed and suspended in a gas medium. It is also called as gas dispersion system. Its dispersion phase is solid, liquid or solid-liquid mixture. PAO-4 aerosol in this

Specification refers to polydisperse aerosol, which takes poly-alpha-olefin oil (PAO) with a kinematic viscosity of $4\text{m}^2/\text{s}$ as the generating medium and is generated by the fog mixing device of the aerosol photometer.

3 Overview

Aerosol photometer (hereinafter referred to as the instrument) is an instrument used to measure the leakage rate of high-efficiency filters and the leakage rate of high-efficiency filtration systems installed with high-efficiency filters.

4 Metrology characteristics

4.1

Sampling flow indication error. no more than $\pm 5\%$.

4.2

Sampling flow repeatability. not more than 2%.

4.3

Sampling flow stability. sampling flow is not more than 5% within 1h.

5.1 Environmental conditions

5.1.1

Temperature. (15~30)°C. Relative humidity. $\leq 85\%$.

5.2.1 Precision aerosol photometer. the maximum allowable error of mass

concentration does not exceed $\pm 10\%$;

5.2.2 Flow standard device. the measurement range is (0~50)L/min; the maximum allowable error does not exceed $\pm 1.0\%$.

6.1 Preparation before calibration

Connect the calibrated instrument, precision aerosol photometer and aerosol fog mixing device as required. According to the use requirements of each equipment, the normal operation of preheating shall not be less than 10min.

6.2.2 Flow repeatability

According to the connection method in 6.2.1, read the standard flow value after the instrument is stable. Repeat the measurement 6 times. Calculate the sampling flow repeatability according to formula (2).

7.1 Calibration record

Refer to Annex D for the calibration record format.

7.2 Processing of calibration results

Calibration results shall be reflected on the calibration certificate or calibration report.

The calibration certificate or report includes at least the following information.

8 Recalibration time interval

The recalibration time interval of the instrument shall be determined by the user according to the usage of the instrument, the performance of the instrument itself, and so on.

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