

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 356-2019

**Technical specification for data validity of wastewater on-line
monitoring system (CODCr, NH₃-N et al.)
(English Translation)**

Issued on: December 24, 2019

Implemented on: March 24, 2020

Issued by: Ministry of Ecology and Environment

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1 Scope

This Standard specifies the judgment process of validity, judgment index of data validity, judgment method of data validity, the calculation of effective mean value and the process of invalid data for monitoring data such as chemical oxygen demand (CODCr), ammonia nitrogen (NH₃-N), total phosphorus (TP), total nitrogen (TN), pH value, temperature, and flow rate which are obtained from the wastewater on-line monitoring system.

This Standard applies to the validity of monitoring data such as chemical oxygen demand (CODCr), ammonia nitrogen (NH₃-N), total phosphorus (TP), total nitrogen (TN), pH value, temperature and flow rate which are obtained from the wastewater on-line monitoring system.

2 Normative references

This standard refers to the following documents or clauses therein. For undated references, the valid edition applies to this Standard.

GB/T 6920, Water-quality - Determination of pH value - Glass electrode method

GB/T 11893, Water-quality - Determination of total phosphorus - Ammonium molybdate spectrophotometric method

GB/T 13195, Water-quality - Determination of water temperature -

Thermometer or reversing thermometer method

HJ 355-2019, Technical specification for operation of wastewater on-line monitoring system (CODCr, NH₃-N et al.)

HJ 535, Water-quality - Determination of Ammonia Nitrogen - Nessler

Reagent Spectrophotometry

HJ 536, Water-quality - Determination of ammonia nitrogen - Salicylic acid spectrophotometry

HJ 636, Water-quality - Determination of total nitrogen - Alkaline potassium persulfate digestion UV spectrophotometric method

HJ 828, Water-quality - Determination of the chemical oxygen demand -

Dichromate method

HJ/T 70, High-chlorine wastewater - Determination of chemical oxygen demand - Chlorine emendation method

3 Terms and definitions

The following terms and definitions are applicable to this Standard.

3.1 Wastewater on-line monitoring system

The system that is composed of software and hardware facilities that realize the functions of wastewater flow monitoring, wastewater-sample collection, wastewater-sample analysis, analysis data statistics and upload.

3.2 Wastewater on-line monitoring equipment

The instrument and equipment, in the wastewater on-line monitoring system, that is used for continuous on-line monitoring of pollutant concentrations and emissions.

3.3 Valid data

Data that is obtained during the normal sampling and monitoring period of the wastewater on-line monitoring system and meets the quality requirements through verification.

4 Judgment process of data validity

The operation status of the wastewater on-line monitoring system is divided into normal sampling and monitoring period AND abnormal sampling and monitoring period.

For the monitoring data that is obtained during the normal sampling and monitoring period, perform validity according to the data validity standards that are specified in Chapters 5 and 6 of this Standard.

The abnormal sampling monitoring period includes equipment outage period, fault repair or maintenance period, and calibration and verification period.

During this period, no matter whether the on-line monitoring system obtains or outputs monitoring data, it is invalid data.

The judgment process of data validity is shown in Figure 1.

x -- standard sample test value, mg/L;

B -- standard sample standard value, mg/L.

5.3 Ultrasonic open-channel flowmeter comparison test error

Perform the comparison test between the automatic monitoring method and the manual monitoring method of the ultrasonic open-channel flowmeters that are installed at each site according to the relevant regulations of HJ 355. The comparison test results shall meet the requirements of Table 1 of HJ 355-2019.

6.1 Judgment of valid data

6.1.1

The monitoring data that is obtained during the normal sampling and monitoring period that meets the data validity that is specified in Chapter 5 of this Standard can be judged as valid data.

6.1.2

When the monitoring value is zero, or a negative value within the zero- drift limit range, or below the equipment detection-limit, it needs to be identified by quality control methods such as on-site inspection, actual water-sample comparison test, standard sample test. The above data that is generated because the actual emission concentration is too low is still judged as valid data.

6.1.3

If the monitoring value rises sharply, drops sharply, or remains constant, it needs to be identified by quality control methods such as on-site inspection, actual water-sample comparison test, standard sample test, and then discriminated and processed.

6.1.4 The operation and maintenance records of the wastewater on-line

monitoring system shall record the alarm, fault repair, daily maintenance, calibration and other contents during the operation. The operation and maintenance records may be used as evidence for judging data validity.

6.1.5 The wastewater on-line monitoring system shall be able to read and view detailed logs. The log records may be used as evidence for judging data validity.

6.2 Judgment of invalid data

6.2.1

When the flow is zero, the monitoring value that is outputted by the on-line monitoring system is invalid data.

6.2.2

When the data error that is received by the water-quality automatic analyzer, data acquisition and transmission instrument, and the monitoring center platform is greater than 1%, the data that is received by the monitoring center platform is invalid data.

6.2.3

When the standard sample test is found to be unsatisfactory or the actual water-sample comparison test is unsatisfactory, the on-line monitoring data of the period from the moment of this failure to the moment of the last qualified calibration and verification (any of the automatic calibration, automatic standard sample verification, actual water-sample comparison test) is all judged as invalid data. The data from the moment of this unqualified time to the next moment of qualified calibration and verification, as data of abnormal sampling and monitoring period, is judged as invalid data.

6.2.4 During the outage of the water-quality automatic analyzer, during fault

repair or maintenance period, during abnormal sampling and monitoring period of planned (quality assurance and quality control) maintenance, calibration and verification, the output monitoring values are invalid data. But the data of this period is marked and retained as the basis for monitoring instrument inspection and calibration.

6.2.5 For the data that is judged to be invalid, indicate the reason and retain the original records.

7.1 Data statistics

All valid data that is obtained during the normal sampling and monitoring period shall be involved in statistics.

When the monitoring value is zero, a negative value within the zero-drift limit range or below the equipment detection-limit, and it is judged as valid data, the corrected value shall be used for the statistics. The correction rules are: CODCr correction value is 2 mg/L, NH₃-N correction value is 0.01 mg/L, TP correction value is 0.005 mg/L, TN correction value is 0.025 mg/L.