

ICS 91.020
CCS P 53

CJ

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

CJ/T 428-2013

3018.9-1993; CJ/T 3018.10-1993; CJ/T 3018.11-1993; CJ/T 3018.12-1993; CJ/T 3018.13-1993; CJ/T 3018.14-1993

Detection methods for the leachate from municipal solid waste

生活垃圾渗沥液检测方法

(English Translation)

Issued on: January 1, 1970

Implemented on: January 1, 1970

**Issued by: Ministry of Housing and Urban-Rural Development of the
People's Republic of China**

Table of Contents

Preface	
1 Scope	
2 Normative references	
3 Terms and Definitions	
4 Chroma	
5 Total solids	
6 Total dissolved solids and total suspended solids	
7 Sulfate	
8 Ammonia nitrogen	
9 Kjeldahl nitrogen	
10 Total Nitrogen	
11 Chloride	
12 Total phosphorus	
13 PH	
14 Biochemical Oxygen Demand Five Days (BOD ₅)	
15 Chemical Oxygen Demand (COD _{Cr})	
16 Conductivity	
17 Potassium and Sodium	
18 Total Mercury	
19 Total arsenic	
20 Lead and Cadmium	
21 Total chromium	
22 Total bacteria	
23 Total coliforms	
24 Fecal coliforms	
25 Quality Assurance and Control	
Appendix A (Informative Appendix) Sulfuric acid standard titration solution and methyl red-bromocresol green mixed indicator	
Appendix B (Normative Appendix) The pH of the standard solution varies with temperature	
Appendix C (Normative Appendix) Gram Stain and Microscopic Examination	

1 Scope 1

2 Normative references 1

3 Terms and Definitions 1

4 Chroma 3

5 total solids 4

6 Total dissolved solids and total suspended solids5

7 Sulfate 6

8 Ammonia nitrogen 8

9 Kjeldahl nitrogen 11

10 Total Nitrogen 13

11 Chloride 16

12 Total phosphorus 18 13 pH 22

14 Biochemical Oxygen Demand Five Days (BOD5) 24

15 Chemical Oxygen Demand (CODCr) 28

17 Potassium and Sodium33

18 Total Mercury 35

19 total arsenic 40

20 Lead and Cadmium42

21 total chromium 48 22 total bacteria 50

23 Total coliforms 53

24 Fecal coliforms 59

25 Quality Assurance and Control 63

Appendix A (Informative Appendix) Sulfuric acid standard titration solution and methyl red-bromocresol green mixed indicator 64

Appendix B (Normative Appendix) The pH of the standard solution varies with temperature 65

Appendix C (Normative Appendix) Gram Stain and Microscopic Examination 66

Detection method of domestic waste leachate

1 Scope

This standard specifies the terms and definitions, color, total solids, total dissolved solids and total suspended solids, sulfuric acid Salt, ammonia nitrogen, Kjeldahl nitrogen, total nitrogen, chloride, total phosphorus, pH, BOD₅, COD, conductivity, potassium and sodium, total mercury, total the detection methods and quality assurance and control of 21 items such as arsenic, lead and cadmium, total chromium, total bacterial count, total coliform group, and fecal coliform group.

This standard is applicable to the determination of domestic waste leachate.

2 Normative references the following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 7485 Determination of total arsenic in water quality Silver diethyldithiocarbamate spectrophotometric method GB/T 7489 Determination of Dissolved Oxygen in Water Quality - Iodometric Method HJ168 Technical guidelines for formulation and revision of environmental monitoring analysis method standards HJ535 Water Quality Determination of Ammonia Nitrogen by Nessler's Reagent Spectrophotometry

3 Terms and Definitions the following terms and definitions apply to this document.

detection limit limit of detection the minimum concentration or amount of analyte that can be detected in a sample by a specific analytical method within a given confidence level.

Standard curve standard curve with pure solvent as a reference, the curve drawn after directly measuring the signal value with a series of standard solutions. Then under the same operating conditions Determine the signal value of the sample, and check the content or concentration of the signal value of the sample from the standard curve.

working curve working curve when the interference caused by the pretreatment of the sample to the measured components cannot be ignored, a series of standard solutions should not be used to directly measure the signal value, and should be prepared.

Make the standard solution after the same pretreatment as the sample, and then measure the signal value to draw the curve. It can be found from the working curve that the phase the content or concentration of the signal value of the measured sample under the same operating conditions.

Accuracy accuracy

The degree of agreement between the measured value and the true value. It can be analyzed by directly measuring the standard sample or measuring the recovery rate of the standard sample Evaluation.

3.4.1

Use a standard sample (generally artificially synthesized) with a known content of the substance to be tested for analysis, and compare the measured results with the known content (when as the difference between the true value), the relative error is calculated as the accuracy of the operation and the method [see equation (1)].

$$Z1 = D - BB \times 100\%$$

In the formula.

Z1---accuracy (relative error);

D --- Measured value;

B --- standard sample content.

Calculation results should be expressed with plus or minus signs.

3.4.2

At the same time as the sample is taken, another part is taken and an appropriate amount of standard substance is added for measurement at the same time, and the addition of standard substance is calculated according to the measurement result.

The recovery rate is used as the accuracy of the method [see formula (2)].

$$Z2 = E - FG \times 100\%$$

In the formula.

Z2---accuracy (standard addition recovery rate);

E --- spiked sample;

F --- original sample;

G --- plus scalar.

precision

Under certain conditions, the degree of consistency between the results obtained by implementing the experimental steps several times. The smaller the random error that affects the experimental results, the actual the higher the precision of the test results.

3.5.1

The percentage of the ratio of the standard deviation to the absolute value of the arithmetic mean. It is often used to evaluate the precision of a determination method [see formula (3)].

$$P1 = S$$

$$\times 100\% \quad (3)$$