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**General Rules for Analytical and
Testing Methods of Coal Mine Water**
煤矿水水质分析的一般规定

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by China Coal Industry Association.

This Standard shall be under the jurisdiction of the National Standardization Technical Committee on Coal (SAC/TC 42).

The drafting organizations of this Standard: Chongqing Institute of Geology and Mineral Resources, Chongqing Juneng Construction Group Co., Ltd.

The main drafters of this Standard: Zhu Zhenzhong, Tong Chunlin, Li Chengtao, Yang Tianfu.

General Rules for Analytical and Testing Methods of Coal Mine Water

1 Application Scope

This Standard specifies the general rules, sample, determination, solutions and their concentration, expression of results, accuracy of method, test record and test report of analysis and testing of coal mine water.

This Standard applies to the analysis and testing of coal mine water.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition dated applies to this document. For undated references, the latest edition of the referenced documents (including all amendments) applies to this Part.

GB/T 601, *Chemical Reagent – Preparations of Standard Volumetric Solutions*

GB 3100, *The International System of Units and Its Application*

GB/T 3101, *General Principles Concerning Quantities, Units and Symbols*

GB 3102 (all parts), *Quantities and Units*

GB/T 6379.2, *Accuracy (Trueness and Precision) of Measurement Methods and Results – Part 2: Basic Method for the Determination of Repeatability and Reproducibility of a Standard Measurement Method*

GB/T 6682, *Water for Analytical Laboratory Use – Specification and Test Methods*

GB/T 8170, *Rules of Rounding off for Numerical Values and Expression and Judgement of Limiting Values*

GB/T 8538, *Methods for Examination of Drinking Natural Mineral Water*

3 General Rules

3.1 The analytical methods listed in the analytical standard of coal mine water may be used in arbitration analysis, validation of other analytical methods, standard substance fixed value analysis and routine analysis.

5.4 Blank test

Blank test shall be carried out for chemical analysis while samples are tested. The same flask of reagent prepared solution shall be used for blank test and sample test; and meanwhile, they shall be carried out under the same procedures and conditions. Blank values shall be deducted in the results calculated.

6 Solutions and Their Concentrations

6.1 Unless specified otherwise, the water used in the preparation of solutions and process of analysis shall be grade-3 water specified in GB/T 6682.

6.2 All solutions using water as solvents are water solutions, usually abbreviation solutions; solution using other liquids as solvents shall be named with the name of solvents in front.

6.3 The frequently-used solution concentrations in standards are expressed as follows:

- a) the mass concentration of substance B: the mass of substance B divided by the total volume of mixture. It is usually expressed in g/L, mg/L, mg/mL, $\mu\text{g/mL}$ and ng/mL;
- b) the amount-of-substance concentration of substance B or the concentration of substance B: the amount-of-substance of substance B divided by the total volume of mixture. It is usually expressed in mol/L and mmol/L. The basic element form of solute shall be indicated in actual applications;
- c) the mass fraction of substance B: the ratio of the mass of solute to the mass of solution (solute + solvent), i.e. the ratio of the mass of substance B to the mass of mixture, which is usually expressed in %, 10^{-2} , 10^{-4} , 10^{-6} and 10^{-9} ;
- d) the mass ratio: the ratio of two masses of a certain constituent in the mixtures. It is expressed by " $m_1 + m_2$ ", i.e. the reagents of mass m_1 and mass m_2 mixed up;
- e) the volume fraction of substance B: the ratio of the volumes of pure substance B and mixture under the same temperature and pressure, which is usually expressed in mL/L or its fraction or multiple;
- f) the volume ratio: the ratio of liquid reagent to solvent. It is expressed by " $V_1 + V_2$ ", i.e. the certain solution of volume V_1 added to the solvent of volume V_2 .

6.4 The conversion factors in the method standard and the concentrations of standard solutions shall be rounded off to four significant digits.

6.5 The calibration of solutions shall be as specified in GB/T 601.

- a) test item name, record form management number, marking of page number and total pages number;
- b) test date;
- c) test standard or method, and name and number of main apparatus used;
- d) sample number in laboratory;
- e) sample pretreatment (if necessary);
- f) test data;
- g) test result and calculation;
- h) environmental conditions for test;
- i) tester and reviewer;
- j) other issues that need to be addressed or content that needs to be added (if necessary).

9.2 Test report

Test report shall be prepared in accordance with the specified format, terms, symbols and legal units of measurement, usually including the following content:

- a) name, number, page number, total pages of report;
- b) name and address of testing agency;
- c) uniqueness identifier of report and clear identifier of report ending;
- d) name and address of client (if necessary);
- e) identification of standard or method used;
- f) description and identification of state of sample;
- g) sample submission date;
- h) test date (if necessary);
- i) test items and their result;
- j) procedures for sample (if necessary);
- k) signature or equivalent identification of main tester, reviewer and report approver;
- l) report approval date;

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