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Norm of Water Intake -

Part 34: Direct Coal Liquefaction

取水定额 第 34 部分：煤炭直接液化

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Foreword

The following parts of GB/T 18916 Norm of Water Intake have been issued or are planned to be issued:

- Part 1: Fossil Fired Power Production;
- Part 2: Iron and Steel Complex;
- Part 3: Petroleum Refining;
- Part 4: Dyeing and Finishing of Cotton Production;
- Part 5: Pulp, Paper and Paper Board Production;
- Part 6: Brewing Industry;
- Part 7: Alcohol Production;
- Part 8: Ammonia Synthesis;
- Part 9: Monosodium L-glutamate Production;
- Part 10: Pharmaceutical Products;
- Part 11: Coal Cleaning;
- Part 12: Alumina Production;
- Part 13: Ethylene Production;
- Part 14: Wool Textile Product;
- Part 15: Chinese Spirits Production;
- Part 16: Electrolytic Aluminum Production;
- Part 17: Manufacture of Accumulating Type of Bauxite;
- Part 18: Copper Smelting Production;
- Part 19: Lead Smelting Production;
- Part 20: Chemical Filament Yarns Weaving Products;
- Part 21: Silk Production;
- Part 22: Starch Sugar Production;

Norm of Water Intake -

Part 34: Direct Coal Liquefaction

1 Scope

This Part of GB/T 18916 specifies the terms and definitions, calculation methods and norm of water intake of direct coal liquefaction.

This Part is applicable to the management of water intake of the existing, newly constructed, reorganized and expanded enterprises in direct coal liquefaction.

2 Normative References

The following documents are indispensable to the application of this Standard. In terms of references with a specified date, only versions with a specified date are applicable to this Standard. The latest version (including all the modifications) of references without a specified date is also applicable to this Standard.

GB/T 12452 The General Principles of Water Balance Test in Enterprises

GB/T 18820 General Principles of Stipulation of Water Intake Norm for Industrial Product

GB/T 21534 Industrial Water Usage and Conservation - Terminology

GB 24789 General Provisions on Equipping and Managing of the Measuring Instrument of Water in Organization of Water Using

GB/T 31428 Terms Relating to Coal Chemical Technology

3 Terms and Definitions

What is defined in GB/T 18820, GB/T 21534 and GB/T 31428, and the following terms and definitions are applicable to this document.

3.1 Direct Coal Liquefaction

Direct coal liquefaction refers to the process technology of coal's direct conversion into liquid products through hydrogenation reaction under the effect of catalyst, and the condition of high temperature, high pressure and hydrogenation.

3.2 Quantity of Water Intake for Per Ton Hydrocarbon

V_{tin} ---quantity of water intake for self-constructed water supply facilities, expressed in (m^3);

V_{ob} ---quantity of water purchased from external sources, expressed in (m^3);

V_{os} ---quantity of water supplied by external sources, expressed in (m^3).

4.3 Quantity of Water Intake for Per Ton Hydrocarbon

The quantity of water intake for per ton hydrocarbon shall be calculated in accordance with Formula (2):

$$V_{\text{ui}} = \frac{V_{\text{in}}}{W} \dots\dots\dots (2)$$

Where:

V_{ui} ---quantity of water intake for per ton hydrocarbon, expressed in (m^3/t);

V_{in} ---within a certain measuring time, quantity of water intake for direct coal liquefaction, expressed in (m^3);

W ---within corresponding measuring time, output of petroleum products from direct coal liquefaction, expressed in (t).

5 Norm of Water Intake

5.1 Water Intake Norm of Existing Enterprises

The norm of water intake of existing enterprises in the production of petroleum products from direct coal liquefaction shall be not more than $6.5 \text{ m}^3/\text{t}$.

5.2 Water Intake Norm of Newly Constructed, Reorganized and Expanded Enterprises

The norm of water intake of newly constructed, reorganized and expanded enterprises in the production of petroleum products from direct coal liquefaction shall be not more than $6.2 \text{ m}^3/\text{t}$.

5.3 Water Intake Norm of Advanced Enterprises

The norm of water intake of advanced enterprises in the production of petroleum products from direct coal liquefaction shall be not more than $6.2 \text{ m}^3/\text{t}$.

6 Instructions for Norm Usage

6.1 The configuration and management of water measuring instrument for enterprises

Appendix A

(Informative)

Calculation of Quantity of Water Purchased from and Supplied by External Sources

A.1 Calculation of Quantity of Water Purchased from External Sources

The quantity of water purchased from external sources shall be calculated in accordance with Formula (A.1):

$$V_{ob} = V_{inb} + k_1 \times V_{chb} + k_2 \times D_{stb} / \rho \quad \dots\dots\dots (A.1)$$

Where:

V_{ob} ---quantity of water purchased from external sources, expressed in (m³);

V_{inb} ---quantity of water intake purchased from external sources, expressed in (m³);

k_1 ---softened water and demineralized water preparation (conversion) coefficient (please refer to Appendix B for the calculation);

V_{chb} ---quantity of chemical water purchased from external sources, expressed in (m³);

k_2 ---steam preparation (conversion) coefficient (please refer to Appendix B for the calculation);

D_{stb} ---quantity of steam purchased from external sources, expressed in (t);

ρ ---water density, expressed in (t/m³) (water density shall be calculated as 1 t/m³).

A.2 Calculation of Quantity of Water Supplied by External Sources

The quantity of water supplied by external sources shall be calculated in accordance with Formula (A.2):

$$V_{os} = V_{ins} + k_1 \times V_{chs} + k_2 \times D_{sts} / \rho \quad \dots\dots\dots (A.2)$$

Where:

V_{os} ---quantity of water supplied by external sources, expressed in (m³);

V_{ins} ---quantity of water intake supplied by external sources, expressed in (m³);

k_1 ---softened water and demineralized water preparation (conversion) coefficient

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