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

GB/T 18916.39-2019

Norm of water intake - Part 39: Coal to synthetic natural gas

取水定额 第39部分:煤制合成天然气

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Foreword

At present, GB/T 18916 Norm of Water Intake has issued, or, plans to issue the following parts:

- Part 1: Fossil Fired Power Production;
- Part 2: Iron and Steel Complex;
- Part 3: Petroleum Refining;
- Part 4: Dyeing and Finishing of Textile Industrial Product;
- Part 5: Pulp, Paper and Paper Board Production;
- Part 6: Beer Brewing Industry;
- Part 7: Alcohol Production;
- Part 8: Synthetic Ammonia;
- Part 9: Monosodium L-glutamate Production;
- Part 10: Pharmaceutical Products;
- Part 11: Coal Cleaning;
- Part 12: Alumina Production;
- Part 13: Ethylene Production;

1 Scope

GB/T 18916.39-2019 is the Chinese national standard on norm of water intake - part 39: coal to synthetic natural gas, in the field of environment and health protection, safety. The /T

suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 4 June 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2019. Classification: ICS 13.060.25, CCS P41. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part of GB/T 18916 stipulates the terms, definitions and calculation method of norm of water intake of coal to synthetic natural gas. This Part is applicable to the management of water intake of current, newly constructed, reconstructed and expanded coal to synthetic natural gas enterprises, which take coal as the raw material to make synthetic natural gas.

2 Normative References

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

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 Coal to Synthetic Natural Gas Coal to synthetic natural gas refers to natural gas, which is prepared through gasification and methanation process after the treatment of gasification, conversion, purification and methanation process by taking coal as the raw material.

Appendix A

(Informative) Calculation of Externally Purchased Water and Externally Supplied Water A.1

Calculation of Externally Purchased Water Externally purchased water shall be calculated in accordance with Formula (A.1): Where: V_{inb}

---externally purchased water intake, expressed in (m³); k_1

---softened water, demineralized water production (conversion) coefficient (please refer to Appendix B for the calculation); V_{chb}

---externally purchased chemical water, expressed in (m³); k_2

---steam production (conversion) coefficient (please refer to Appendix B for the calculation); D_{stb}

---externally purchased steam, expressed in (t); ρ

---water density, expressed in (t/m³) (water density shall take 1 t/m³). A.2 Calculation of Externally Supplied Water Externally supplied water shall be calculated in accordance with Formula (A.2): Where: V_{ins}

---externally supplied water intake, expressed in (m³); k_1

---softened water, demineralized water production (conversion) coefficient (please refer to Appendix B for the calculation); V_{chs}

---externally supplied chemical water, expressed in (m³);

Appendix B

(Informative) Calculation of Softened Water, Demineralized Water and Steam Production (conversion) Coefficient B.1 Softened Water, Demineralized Water Production (conversion) Coefficient The coefficient of converting the amount of softened water and demineralized water into water intake shall be calculated in accordance with Formula (B.1): Where: k_1

---softened water and demineralized water conversion coefficient; V_{cin}

---water intake for the production of softened water and demineralized water (water intake converted from the amount of softened water and demineralized water), expressed in (m³); V_{cn}

---the amount of softened water and demineralized water, expressed in (m³). B.2 Steam Production (conversion) Coefficient The coefficient of converting the amount of steam into water intake shall be calculated in accordance with Formula (B.2): Where: k_1

---softened water and demineralized water conversion coefficient; k_2

---steam conversion coefficient; V_{sin}

---water intake for the production of steam (water intake converted from the amount of steam), expressed in (m³); D_{st}

---steam output, expressed in (t); rho

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