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

GB 21344-2023

Replacing GB 21344-2015

**Norm of energy consumption per unit production of fertilizer
industry**

化肥行业单位产品能源消耗限额

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Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting: This document replaces GB 21344-2015 "Energy consumption limit per unit product of synthetic ammonia" and GB 29138-2012 "Unit production limit of monoammonium phosphate": Product Energy Consumption Limit", GB 29139-2012 "Energy Consumption Limit per Unit of Diammonium Phosphate" and GB 29439-2012 "Potassium Sulfate Unit Product Energy Consumption Limit", GB 31829-2015 "Ammonium Bicarbonate Unit Product Power Consumption Limit", GB 32035-2015 "Urea Unit Product Energy Consumption Limit", and GB 21344-2015, GB 29138-2012, GB 29139-2012, GB 29439-2012, GB 31829- Compared with:2015 and GB 32035-2015, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The scope of application of the standard has been changed (see Chapter 1, GB 21344-2015, GB 29138-2012, GB 29139-2012, Chapter 1 of GB 29439-2012, GB 31829-2015, GB 32035-2015);
- b) Added the definition of potassium sulfate granulation (see 3:11);
- c) The energy consumption limit indicators for synthetic ammonia, urea, ammonium bicarbonate, monoammonium phosphate, diammonium phosphate and potassium sulfate have been changed (see Chapter 4, GB 21344-2015, GB 29138-2012, GB 29139-2012, GB 29439-2012, GB 31829-2015, Chapter 4 of GB 32035-2015);
- d) Increased energy consumption limit requirements for ammonia synthesis using lignite as raw material (see Chapter 4);
- e) Increased energy consumption during winter production of the Mannheim process in cold areas and increased energy consumption of potassium sulfate granulated products (see 4:6);
- f) Changed the scope of monoammonium phosphate and diammonium phosphate production systems (see Chapter 6, GB 29138-2012, GB 29139-2012 3:3, 3:4);
- g) Changed the utilization rate of ammonia (see 6:2:2:3, A:3:1 of GB 21344-2015);

h) Energy saving management and measures are deleted (GB 21344-2015, GB 29138-2012, GB 29139-2012, GB 29439-2012, GB 31829-2015, Chapter 6 of GB 32035-2015): Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents: This document is proposed and coordinated by the National Standardization Administration Committee: The previous versions of this document and the documents it replaces are as follows:

---First published in:2008 as GB 21344-2008 "Synthetic Ammonia Unit Product Energy Consumption Limit", first revised in:2015;

---In:2012, they were first released as GB 29138-2012 "Energy Consumption Limit of Monoammonium Phosphate Unit Product" and GB 29139-2012 "Energy consumption limit per unit product of diammonium phosphate" and GB 29439-2012 "Energy consumption limit per unit product of potassium sulfate";

---In:2015, they were first released as GB 31829-2015 "Ammonium Bicarbonate Unit Product Power Consumption Limit" and GB 32035-2015: "Urea unit product energy consumption limit";

---This is the first integrated revision: Energy consumption limit per unit product in the fertilizer industry

1 Scope

GB 21344-2023 is the Chinese national standard on norm of energy consumption per unit production of fertilizer industry, in the field of energy and heat transfer engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2024. Classification: ICS 27.010, CCS F01. 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 document stipulates the energy consumption per unit product of synthetic ammonia, urea, ammonium bicarbonate, monoammonium phosphate, diammonium phosphate and potassium sulfate (hereinafter referred to as Energy consumption) limit level, technical requirements, energy consumption statistical scope and calculation method: This document is applicable to the calculation and assessment of energy consumption of production enterprises of synthetic ammonia, urea, ammonium bicarbonate, monoammonium phosphate, diammonium phosphate, and potassium sulfate: and energy consumption control in new construction, renovation and expansion projects: This document does not

apply to the following manufacturing companies:

---Produce synthetic ammonia using heavy oil, residual oil, and coke oven gas as raw materials;

---Using melamine tail gas and other by-products as ammonium bicarbonate;

---Produce monoammonium phosphate and diammonium phosphate from industrial monoammonium phosphate and industrial diammonium phosphate;

---Produce monoammonium phosphate and diammonium phosphate from commercial phosphoric acid;

---Using seawater or brine to prepare potassium and magnesium sulfate fertilizers and using ammonium sulfate conversion method, gypsum conversion method, association method, mixed salt method and other production methods: Produce potassium sulfate:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 213 Calorific value determination method of coal GB/T 2440 Urea

GB/T 2589 General principles for comprehensive energy consumption calculation

GB/T 3559 Ammonium bicarbonate for agricultural use

GB/T 9143 Commercial coal quality fixed bed gasification coal

GB/T 10205 Monoammonium phosphate, diammonium phosphate

GB/T 11062 Calculation method for calorific value, density, relative density and Wobbe index of natural gas

GB/T 12723 General rules for compiling energy consumption limits per unit product

GB/T 20406 Potassium sulfate for agricultural use

GB 50176 Thermal design code for civil buildings

3 Terms and definitions

The terms and definitions defined in GB/T 2589, GB/T 12723 and the following apply to this document: 3:

1 During the statistical reporting period, the total amount of various energy consumed in the

production of synthetic ammonia: 3:

2 Comprehensive energy consumption of ammonia synthesis expressed in unit output:

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