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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 65.080

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GB 2440-2001

Replacing GB 2440-1991, GB/T 13257-1991

Urea

尿素

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Issued on: July 26, 2001

Implemented on: January 1, 2002

**Issued by: General Administration of Quality Supervision, Inspection
and Quarantine of China.**

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Foreword

Clause 3, Clause 6 and 7.1 of Clause 7 of this Standard are mandatory; the rest are recommendatory.

This Standard is the modification to GB 2440-1991 *Urea* and GB/T 13257-1991 *Urea for industrial use - Determination of ash - Weigh method*.

Compared with GB 2440-1991, the main technical differences of this Standard are as follows:

- 1 in technical requirements, ADJUSTED the indicator of total nitrogen content, the indicator of moisture and the indicator of granularity, ADDED the indicator of granularity of large granular urea and DIVIDED the particle size range of particle size into four grades;
- 2 made GB/T 13257-1991 *Urea for industrial use - Determination of ash - Weigh method* as Annex A of this Standard for type inspection;
- 3 modified the sampling method in inspection rules.

Annex A of this Standard is informative.

This Standard was proposed by China State Bureau of Petroleum and Chemical Industry.

This Standard shall be under the jurisdiction of and interpreted by National Technical Committee on Fertilizers and Soil Conditioning Agents of Standardization Administration of China.

The drafting organizations of this Standard: National Fertilizer Quality Supervision and Inspection Center (Shanghai), PetroChina Urumqi Petrochemical Company Fertilizer Plant, China Petroleum & Chemical Corporation Jiujiang Branch, Hainan Fu Island Chemical Co., Ltd.

Main drafters of this Standard: Zhang Qiuzhen, Jiang Jianxin, Li Yujia, Guo Zuliang, Sha Yanping, Yang Jiqun.

This Standard was issued for the first time in 1981.

Urea

1 Scope

This Standard specifies the technical requirements, test methods, inspection rules and marks, packaging, transportation and storage of urea.

This Standard applies to the urea made by carbon dioxide, which is divided into industrial use and agricultural use. Its main use is in agriculture as a fertilizer while in industries of plastic, resin, coating, medicine as industrial raw material.

Molecular formula: $\text{CO}(\text{NH}_2)_2$

Relative molecular mass: 60.055 (according to the International Relative Atomic Mass Index, 1997)

2 Normative references

The following standards contain the provisions which, through reference in this Standard, constitute the provisions of this Standard. At the time of publication of this Standard, the versions shown are valid. All standards shall be revised. However, the parties who enter into agreement based on this Standard are encouraged to investigate whether the latest versions of these documents are applicable.

GB/T 1250-1989, *Rules for expression and judgement of limiting values*;

GB/T 2441.1-2001, *Determination of urea - Determination of total nitrogen content*;

GB/T 2441.2-2001, *Determination of urea - Determination of biuret content - Spectrophotometric method* (neq ISO 2574:1973);

GB/T 2441.3-2001, *Determination of urea - Determination of water content - Karl Fischer method* (eqv ISO 2573:1973);

GB/T 2441.4-2001, *Determination of urea - Determination of iron content - 1,10 - Phenanthroline spectrophotometric method* (neq ISO 6685:1982);

GB/T 2441.5-2001, *Determination of urea - Determination of alkalinity - Titrimetric method* (neq ISO 1593:1977);

GB/T 2441.6-2001, *Determination of urea - Determination of water insolubility*

4 Test methods

4.1 Determination of total nitrogen content

In accordance with the provisions of GB/T 2441.1.

4.2 Determination of biuret content

In accordance with the provisions of GB/T 2441.2.

4.3 Determination of moisture content

In accordance with the provisions of GB/T 2441.3.

4.4 Determination of iron content

In accordance with the provisions of GB/T 2441.4.

4.5 Determination of alkalinity

In accordance with the provisions of GB/T 2441.5.

4.6 Determination of water-insoluble matter content

In accordance with the provisions of GB/T 2441.6.

4.7 Determination of granularity

In accordance with the provisions of GB/T 2441.7.

4.8 Determination of sulfate content

In accordance with the provisions of GB/T 2441.8.

4.9 Determination of methylene diurea content

In accordance with the provisions of GB/T 2441.9.

5 Inspection rules

5.1 In this Standard, "Comparison of Revised Value" of GB/T 1250-1989 is adopted to determine the qualification of indicators.

5.2 The product shall be inspected by the quality inspection department of the manufacturer. The manufacturer should ensure that each batch of exit-factory products meet the requirements of this Standard. Each batch of exit-factory products should be accompanied by a certain format of the quality certificate. The certificate includes the following contents: name of the manufacturer,

different requirements for industrial products and agricultural products, to divide into specimens of 600 g ~ 1200 g. Pack them into two clean, dry wide-mouth bottles with grinding mouth plugs or polyethylene bottles and seal. Stick labels which indicate the manufacturer's name, product name, type, batch number, particle size range, sampling date and sampler name. One bottle is for product quality analysis. The other bottle shall be stored for two month for reference.

5.7 If there is an indicator in the inspection results do not meet the requirements of this Standard, it shall re-extract samples of double amount from sampling bags for inspection. In the results of re-inspection, if one indicator fail to meet the requirements of this Standard, the whole batch of products shall not be accepted.

5.8 In case of argument on product quality between the supplier and the buyer, it shall carry out in accordance with relevant provisions of Product Quality Arbitration Inspection and Product Quality Identification Management Methods.

6 Marks

Packaging bags should be marked with the particle size range. The category cannot be marked. The rest shall be marked according to the provisions of GB 18382.

7 Packaging, transport and storage

7.1 The urea shall be packed by double-layer bag of which the outer bag is plastic woven bag and the inner bag is a polyethylene film bag OR composite plastic woven bag.

The net content of each bag is (25 ± 0.25) kg, (40 ± 0.4) kg or (50 ± 0.5) kg. The average net content of each batch of product bags shall not be less than 25.0 kg, 40.0 kg, 50.0 kg.

The quality of the urea package shall comply with the relevant provisions of GB 8569.

7.2 The urea can be transported by cars, trains, ships or other means of transportation. Transport and handling tools should be clean, smooth, without prominent sharp objects, so as not to pierce, scratch the package.

7.3 The urea should be stored in flat, cool, ventilated and dry warehouse. The packages should be stacked neatly. The stacking height should be less than 7 m.

7.4 Pay attention to rain-proof, sun-proof during the transport and storage of

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