Approved by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

GBW06501

Certificate of Certified Reference Material

Nitrogen and Biuret in Urea

Sample Number：

Date of Certification：

National Institute of Metrology (NIM)

No.18, Bei San Huan Dong Lu, Chaoyang Dist., Beijing, 100013, P.R.China

Tel: +86(10) 64271639, 64278838, 64204432

Fax: +86(10) 64271639, 64213149

Website: www.nim.ac.cn; www.ncrm.org.cn

国家标准物质资源共享平台 www.ncrm.org.cn

1. Description of Material & Intended Use

This certified reference material (CRM) is mainly intended for calibration of instruments, evaluation of analytical methods, verification on the actual ability of personnel and laboratories and examination on the reliability of data provided. It is also served as an arbitration standard and a working standard in daily analysis for nitrogen and biuret in fertilizers.

2. Preparation

The candidate of this reference material, urea, was grinded into powder and part of which with the particle size in the range of 147-1100μm was thoroughly mixed in mixing vessel. The qualificatory candidate of the CRM was encapsulated into plastic bottles of 60 ml in clean glove box and each bottle contains about 35g of the CRM. It should be kept in desiccators and placed in dark and dry place at room temperature.

3. Traceability and certification

The certified value of N and biuret in this CRM were determined with the measurement by a network of several laboratories using ISO standard method - Kjeldahl nitrogen determination method and complex salt of Cu spectrophotometric method, atomic absorption spestroscopy, respectively.

The traceability of the certified value is ensured by using measurement methods and measuring instruments that meet the requirements of metrology.

4. Certified value and uncertainty

The certified value and the relative expanded uncertainty of the CRM are as follows:

Code	Property	Certified value / %	Expanded uncertainty / %, *k*=2
GBW06502	N	46.30	0.20
	Biuret	1.39	0.06

Mean value of the results independently obtained by different laboratories were considered as the certified value of this CRM. And the standard deviation of the independent values was considered as its uncertainty.

The information values for Ca, Mn, B and Fe were determined by using inductively coupled plasma emission spectrometry method. They are as follows:

Peoperty	Ca	Mn	Fe	B
Information value（μg/g）	（1.1）	（0.2）	（1.1）	（2.4）

the sample of certificate for reference

5. Homogeneity and Stability Testing

According to the requirement of national criterion for primary certified reference materials, the homogeneity testing for N and biuret in this reference material was carried out through random sampling by using characterization method. The *F*-test method was used for homogeneity testing and no statistically significant difference among bottles was observed. The reference material is in good homogeneity. The minimum sample intake of the CRM is 0.2g.

The stability testing for this certified reference material was implemented and the measurement results fluctuated in the range of the uncertainty. It showed that the reference material is well stable for more than five years.

The valid period of this CRM is from the date of certification till March 2010. The stability of this RM is regularly monitored by NIM. Any change of the certified value during this period will be informed to the customers in time.

6. Instructions for use

- This certified reference material is encapsulated in plastic bottles and each bottle contains about 35g of the CRM.
- It should be kept in desiccator and placed in dark and dry place at room temperature.
- It **CANNOT** be drying and it should be capped well after using.

7. Co-operating analysis

National Quality Supervision and Test Center for fertilizers

National Quality Supervision and Test Center for food

Institute of Lipid & Grain Chemistry, Ministry of Commerce

Institute of food inspection, Ministry of Commerce

Institute of Environmental Health and Engineering, Chinese Academy of Preventive Medicine

Institute of 612, Ministry of Aerospace

Testing Center for Rock and Mineral, Ministry of Geology and Mineral Resources

STATEMENT

1. The CRM is limited to the use of scientific research and analytical measurement. NIM is not responsible for any loss caused by improper use and storage of the CRM by the customer. Any compensate can only cover CRM itself.
2. Please check the status of reference materials as soon as the sample arriving. The certificate is only valid with the whole file and special stamp for NIM RM distribution. Please keep the integrality of the certificate.
3. If more information related to the use of the CRM is needed, please contact the technical enquiries section.

CNRM 国家标准物质资源共享平台 www.ncrm.org.cn