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

GB/T 631-2026

Replacing GB/T 631-2007

Chemical reagent - Ammonia solution

化学试剂 氨水

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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/T 631-2007 "Chemical Reagent Ammonia Water". Compared with GB/T 631-2007, the main differences are structural adjustments and editorial changes. Aside from the modifications, the main technical changes are as follows:

a) Added technical requirements and testing methods for high purity and superior purity

grades (see Chapters 5 and 6); (b) Three ion chromatography methods for the determination of chloride, sulfate, and phosphate have been added (see 6.4.2, 6.6.2, and 6.8.2);

c) Seven inductively coupled plasma atomic emission spectrometry (ICP-AES) and inductively coupled plasma mass spectrometry (ICP-MS) methods were added for sodium, magnesium, potassium, calcium, iron, copper, and lead. Two methods for determination by spectroscopic methods (see

6.10.2 and 6.10.3);

d) Packaging and signage have been changed (see Chapter 8, Chapter 7 of the 2007 edition). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Petroleum and Chemical Industry Federation. This document is under the jurisdiction of the National Technical Committee on Chemical Standardization (SAC/TC63). This document was drafted by: Nanjing Qunke Chemical Research Institute, Jiangsu Provincial Institute of Product Quality Supervision and Inspection, and Beijing Chemical Reagent Research Institute. Limited Liability Company, Hunan Huihong Reagent Co., Ltd., Zhejiang Haizhou Pharmaceutical Co., Ltd., Yonghua Chemical Co., Ltd., Kunshan Jinko Microelectronics Co., Ltd. Electronic Materials Co., Ltd., Huizhou Huadatong Gas Manufacturing Co., Ltd., Zhengzhou Heyi Environmental Protection Technology Co., Ltd., Shanxi Tongjie Chemical Reagent Company Limited. The main drafters of this document are: Su Yuqian, Qiu Ailing, Zhao Jifei, Wang Yuhua, Zhu Sihao, Wang Biwei, Yin Yanhong, Xu Shan, Duan Xiangjiang, and Zhou Jingjing. Chen Guihong, Jian Jinxiang, Wang Wenling, Qu Jian, Li Ming. The release history of this document and the document it replaces is as follows:

---First published in 1965 as GB/T 631-1965, revised for the first time in 1977, revised for the second time in 1989, and revised for the third time in 2007. This revision;

---This is the fourth revision. Chemical reagent ammonia Warning

---Some of the testing procedures specified in this document may lead to hazardous situations. Users are responsible for taking appropriate safety and health precautions. Implement the measures and ensure they comply with the conditions stipulated by relevant national laws and regulations.

1 Scope

GB/T 631-2026 is the Chinese national standard covering reagent grade ammonia solution - the assay and the limits on the chloride, sulfate, heavy metals and carbonate that would interfere in the analyses it is used in. It replaces GB/T 631-2007 and has been in force since 1 September 2026, with the other chemical reagent standards of this batch. It was issued on 27 February 2026 and has been in force since 1 September 2026, replacing

GB/T 631-2007. The document is under the responsibility of the China Petroleum and Chemical Industry Federation. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the properties, technical requirements, inspection rules, packaging and marking of the chemical reagent ammonia, and describes the corresponding test methods. This document applies to the testing of the chemical reagent ammonia.

Note. The chemical reagent ammonia has the molecular formula $\text{NH}_3 \cdot \text{H}_2\text{O}$, a relative molecular mass of 35.05 (based on the 2022 international relative atomic mass), and the CAS number is 1336-21-6.

1.0 L/min, Atomizing gas

0.7 L/min. Solution extraction rate.

1.2 mL/min. Analysis time. rinsing for 30 seconds, exposure for 5 seconds. The above instrument conditions can be optimized according to specific circumstances.

6.10.2.3 Determination Method Depending on the content of the analyte element in the sample, weigh 10g to 50g of the sample and place it in a quartz dish. Heat in a water bath or on an adjustable temperature electric plate. Evaporate and concentrate to approximately 5 mL on a hot plate. After cooling, transfer to a 25 mL volumetric flask, dilute to the mark with 5% nitric acid solution, and mix well. The determination shall be made in accordance with the provisions of

7.3.2 in GB/T 23942-2009, and the results shall be calculated in accordance with the provisions of

7.3.4 in GB/T 23942-2009.

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.Characteristics Ammonia water is an aqueous solution of ammonia. It is colorless, transparent, and has a pungent odor. It absorbs carbon dioxide from the air and has a density of approximately

0.90 g/mL.

5 Technical Requirements

The technical requirements for ammonia water (superior grade, analytical grade, and chemically pure) shall conform to the provisions of Table 1, and the technical requirements

for high-purity ammonia water shall conform to the provisions of Table 2. Regulation.

6 Test Methods

6.1 General Provisions Unless otherwise specified in this chapter, all standard titrants, standard solutions, preparations and products used shall comply with GB/T 601, GB/T 602, and GB/T 602. Prepared according to GB/T 603, laboratory water should meet the Class III water specifications in GB/T 6682 (the laboratory water for high-purity ammonia should meet the specifications). (GB/T 6682 Class I water specification), all reagents used were of analytical grade or higher, and all samples were measured to an accuracy of

0.1 mL. All values expressed as percentages "%" represent mass fractions.

6.2 Ammonia Measure 15 mL of water and pour it into a stoppered light-bodied conical flask. Weigh the flask, add 1 mL of sample, immediately cap the flask, and weigh it again. The two weighings should be consistent. Accurate to 0.0001g, add 40mL of water, add 2 drops of methyl red-methylene blue mixed indicator solution, and titrate with standard hydrochloric acid solution [c(HCl)= Titrate with

0.5 mol/L solution until the solution turns red. The mass fraction (w1) of ammonia solution is calculated according to formula (1).

6.3 Evaporation Residue Take 55 mL (50

g) of sample [110 mL (100

g) for high purity] and determine it according to GB/T 9740.

6.4.1.1 Preparation of test solution Take 110 mL (100

g) of sample, add

1.7 mL of sodium carbonate solution (50 g/L), evaporate to dryness in a water bath, dissolve the residue in water, and dilute. Up to 50 mL.

6.4.1.2 Determination Method Take 10 mL of the test solution, dilute it to 20 mL, and determine the turbidity according to GB/T 9729. The turbidity of the solution should not exceed the standard. Turbidity-sensitive solution. The standard turbidity solution is prepared by taking a standard solution containing

0.01 mg (analytical grade, superior grade) or

0.02 mg (chemically pure) chloride (Cl) solution. The solution was diluted to 20 mL and treated simultaneously with the same volume of the test solution.

6.4.2 Ion Chromatography

6.4.2.1 Reagents, Materials and Instruments Comply with the provisions of Chapters 5 and