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

GB/T 674-2024

Chemical reagent - Cupric oxide powder

化学试剂 粉状氧化铜

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting is required. This document replaces GB/T 674-2003 "Chemical reagent powdered copper oxide". Compared with GB/T 674-2003, in addition to the structural adjustment In addition to editorial changes, the main technical changes are as follows: Added high purity levels and technical requirements, and determination methods (see Chapter 5 and Chapter 6); - Added technical requirements and determination methods for analytically pure and chemically pure sodium, magnesium, potassium and calcium (see Chapter 5, 6.10, 6.11); Added the calculation formula of hydrochloric acid insoluble matter (see 6.3); - The determination methods of chloride and sulfur compounds have been changed (see 6.5, 6.6, 5.3,

5.4 of the.2003 edition); - Salicylic acid x hypochlorite colorimetric method with added total nitrogen (see 6.7); - Added the calculation formula for cuprous oxide (see 6.9); - Added the determination method of analytically pure and chemically pure iron by inductively coupled plasma atomic emission spectrometry (see 6.11.1); - Changes to packaging and labeling (see Chapter 8, Chapter 7 of the.2003 edition); - The specifications and tests for hydrogen sulfide non-precipitate (see Chapter 4 and

5.9 of the.2003 edition) have been deleted. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Petroleum and Chemical Industry Federation. This document is under the jurisdiction of the Chemical Reagents Subcommittee of the National Technical Committee for Chemical Standardization (SAC/TC 63/SC 3). This document was drafted by: Guangdong Guanghua Technology Co., Ltd., Beijing Institute of Chemical Reagents Co., Ltd., Beijing Huateng Testing Certification Co., Ltd. and Xi'an Zhongjianke Testing and Certification Technology Co., Ltd. The main drafters of this document are. Zhou Yilang, Xu Bin, Liao Huana, Lin Chuqing, Wang Yuhua, Han Baoying, Zhao Jifei, Ju Rongling, Peng Hui, Yang Peijie and

Zhang Minli. This document was first issued in 1965, revised for the first time in 1978, revised for the second time in 2003, and this is the third revision. Chemical reagent powdered copper oxide

1 Scope

GB/T 674-2024 is the Chinese standard for cupric oxide powder as a chemical reagent. Its principal use is one that makes the purity requirement absolute: copper oxide is the oxidant in the combustion train of elemental analysers, where it converts carbon to carbon dioxide quantitatively, so any carbon, sulfur or nitrogen the reagent itself carries appears as a blank in every analysis run with it. The standard sets the grades and the requirements, the assay, the insoluble matter, the loss on ignition, and the limits on chloride, sulfate, nitrogen, iron and the other metals, together with the appearance and the particle size; then the test methods for each determination with the procedure and the permitted limits of the comparison solutions; then the inspection rules and the sampling; and then the marking, packaging, transport and storage. It takes effect on 1 April 2025.

This document specifies the properties, technical requirements, test methods, inspection rules, packaging and marking of powdered copper oxide as a chemical reagent. This document applies to the inspection of powdered copper oxide in chemical reagents.

Note. The molecular formula of chemical reagent powdered copper oxide is CuO , the relative molecular mass is 79.55 (according to the 2022 international relative atomic mass), and the CAS number is 1317380.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 601 Preparation of standard titration solutions for chemical reagents

GB/T 602 Preparation of standard solutions for determination of impurities in chemical reagents

GB/T 603 Preparation of preparations and products used in chemical reagent test methods

GB/T 609-2018 General method for determination of total nitrogen in chemical reagents

GB/T 610-2008 General method for determination of arsenic in chemical reagents

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 9723-2007 General rules for flame atomic absorption spectrometry of chemical

reagents

GB/T 9728 General method for determination of sulfate in chemical reagents

GB 15346 Chemical reagent packaging and marking

GB/T 21191 Atomic Fluorescence Spectrometer

GB/T 23942-2009 General rules for inductively coupled plasma atomic emission spectrometry of chemical reagents

HG/T 3921 Chemical Reagent Sampling and Acceptance Rules

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Properties

Powdered copper oxide is a black powder that is insoluble in water but soluble in acid.

5 Technical requirements

The technical requirements for powdered copper oxide are shown in Table 1.