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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 20614-2026

Replacing GB/T 20614-2006

Fireworks - Determination of perchlorate content in pyrotechnic composition

烟花爆竹 烟火药中高氯酸盐含量的测定

Issued on: February 27, 2026 **Implemented on: June 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

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 supersedes GB/T 20614-2006 "Determination of Perchlorate Content in Fireworks and Firecrackers Pyrotechnics", and is consistent with GB/T 20614- Compared to.2006, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---The accuracy of the analytical balance has been changed (see 7.3,

6.3 in the.2006 edition);

---Added content on "Copper Test Sieves" (see 7.6);

---The "Safety Instructions" section has been revised (see 8.1, Chapter 7 of the.2006 edition);

---The method for preparing pyrotechnic sample has been changed (see 8.2, Chapter 7 of the.2006 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 National Light Industry Council. This document is under the jurisdiction of the National Technical Committee on Standardization of Fireworks and Firecrackers (SAC/TC149). This document was drafted by: Nanning Customs

Technology Center and Hunan Fireworks and Firecrackers Product Safety and Quality Inspection Center. The main drafters of this document are. Shang Jie, Wu Junyi, Yang Lin, Huang Renli, Bi Yujing, and Chen Ting. The release history of this document and the document it replaces is as follows:

---First published in.2006 as GB/T 20614-2006;

---This is the first revision. Determination of perchlorate content in fireworks and firecracker gunpowder Warning. This document should be used by personnel with practical experience in formal laboratory work. This document does not address all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national laws and regulations.

1 Scope

GB/T 20614-2026 is the Chinese national standard covering perchlorates in a pyrotechnic mixture. Perchlorate is the powerful oxidiser behind the bright colours, and also the residue that turns up in groundwater around display sites. It fixes the reagents, the sample preparation, the procedure and the calculation. It replaces GB/T 20614-2006 and takes effect on 1 June 2026, one of the pyrotechnic analysis methods revised together. It was issued on 27 February 2026 and has been in force since 1 June 2026, replacing GB/T 20614-2006. The document is under the responsibility of the China National Light Industry Council. 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 describes a method for determining the perchlorate content in fireworks and firecracker gunpowder. This document applies to the determination of perchlorate content in fireworks and firecracker gunpowder.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 601 Preparation of Standard Titration Solutions for Chemical Reagents

GB/T 3051-2000 General Method for Determination of Chloride Content in Inorganic Chemical Products - Mercury Measurement

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

GB/T 8170 Rules for rounding off numerical values and the representation and

determination of limiting values AQ4115 General Guidelines for Preventing Static Electricity in Fireworks and Firecrackers SN/T 0306.4-2024 Inspection Procedures for Exported Fireworks and Firecrackers Part

3 Terms and Definitions

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

4.Principles After appropriate pretreatment, the sample was dissolved in hot water and filtered. The filtrate was evaporated and then ignited at high temperature. The residue was dissolved in water and then treated with sulfuric acid. Ferric ammonium was used as an indicator, and the solution was titrated with ammonium thiocyanate standard titration solution until it turned a pale reddish-brown color. A blank test was performed simultaneously. The results of the two titrations were analyzed. The perchlorate content in the sample is calculated by the difference in the volume of ammonium thiocyanate standard titration solution consumed.

5.Reaction Formula The reaction formula is as follows: KClO4 KCl 2O2up Cl- Ag · AgCldown Ag SCN- \u202a \u202aAgSCNdown Fe36SCN- [Fe(SCN)6]3-