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Fireworks — Test methods for determination of specific chemical substances —

Part 8: Arsenic content by hydride generation atomic fluorescence spectrometry

Artifices de divertissement — Méthodes d'essai pour la détermination de substances chimiques spécifiques —

Partie 8: Teneur en arsenic par spectrométrie de fluorescence atomique par génération d'hydrures

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Contents

Page

Foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 264, *Fireworks*.

A list of all the parts in the ISO 22863 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Fireworks — Test methods for determination of specific chemical substances —

Part 8: Arsenic content by hydride generation atomic fluorescence spectrometry

1 Scope

This document specifies the test method for the determination of the arsenic content in pyrotechnic compositions by hydride generation -atomic fluorescence spectrometry

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22863-1, *Fireworks — Test methods for determination of specific chemical substances — Part 1: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22863-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle of the method

After the sample is dissolved by acidic heating, the pentavalent arsenic is first reduced to trivalent arsenic by thiourea in an acidic medium and then potassium borohydride is reacted to form a volatile hydride (AsH_3), which is then loaded by a carrier gas (argon). The hydride is decomposed by the atomizer into atomic arsenic. Under the illumination of the arsenic hollow cathode lamp, the fluorescence of the characteristic wavelength is emitted, and the fluorescence intensity is proportional to the arsenic concentration in the liquid to be measured and is quantitatively compared with the standard series.

5 Reagents

5.1 Perchloric acid (GR)

5.2 Nitric acid (GR)

5.3 Thiourea (AR)

5.4 Ascorbic acid (AR)