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Fireworks — Test methods for determination of specific chemical substances —

Part 12: Picrates and picric acid by high performance liquid chromatography

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of 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 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 12: Picrates and picric acid by high performance liquid chromatography

1 Scope

This document specifies the test method for the determination of picrates and picric acid in firework compositions by high performance liquid chromatography.

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 22863-1:2020, *Fireworks — Test methods for determination of specific chemical substances — Part 1: General*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4 Principle

Picric acid (C_6H_2–OH) and picrates (C_6H_2–OR, R being a metal or organic cation) in pyrotechnic compositions are extracted by dissolution in hot water which let free the picrate anion (C_6H_2–O^{-1}) in the sample solution and determined by high performance liquid chromatography (HPLC) under acidic conditions.

Qualitative analysis can then be carried out by setting the chromatograph to an appropriate detection wavelength and detect the possible emergence of a peak at the characteristic “retention time” of picric anions (characteristic time spent by such anions in the chromatograph column after the sample solution is injected).

Quantitative analysis is carried out by comparing the area under the peak, corresponding to picric anions in the chromatographic response of the sample solution, to that of external standards (ESTD) of known concentrations of picric acid.

5 Reagents

All reagents are of analytical purity, except for special provisions.