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Meat and meat products — Determination of nitrite and nitrate content — Continuous flow analysis (CFA) method

Viande et produits à base de viande — Détermination des teneurs en nitrites et nitrates — Méthode par analyse en flux continu (CFA)

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Foreword

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This document was prepared by ISO/TC 34, *Food products*, Subcommittee SC 6, *Meat, poultry, fish, eggs and their products*.

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Meat and meat products — Determination of nitrite and nitrate content — Continuous flow analysis (CFA) method

1 Scope

This document specifies the determination of nitrite and nitrate content by continuous flow analysis (CFA) method in meat, poultry and their products.

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 648, *Laboratory glassware — Single-volume pipettes*

ISO 835:2007, *Laboratory glassware — Graduated pipettes*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

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

The protein precipitation and fat of the sample are removed under weak acidic conditions. The sample solution is separated by using the flow analyser through the membrane separator.

The automated determination of nitrate and nitrite is based on the cadmium reduction method. The sample is buffered at pH 8,5 and subsequently dialyzed. It is then passed through a cadmium column or ring containing granulated copper-cadmium, which reduces nitrate to nitrite. The total concentration of nitrite (which includes both the original nitrite present and that reduced from nitrate) is determined through diazotization with sulfanilamide, followed by coupling with naphthalene ethylenediamine hydrochloride. This reaction forms a highly coloured azo dye, which is measured spectrophotometrically at 540 nm.

Standard nitrite solutions are determined by the same procedure. The nitrite and nitrate content is calculated by comparing the reading obtained from the test portion with that of the standard solution.

5 Reagents

Use only reagents of recognized analytical grade, unless otherwise specified. Water shall be of at least grade 1 in accordance with ISO 3696.

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