
INTERNATIONAL STANDARD



2918

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Meat and meat products — Determination of nitrite content (Reference method)

Viandes et produits à base de viande — Détermination de la teneur en nitrites (Méthode de référence)

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Sample Document

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2918 was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, and circulated to the Member Bodies in April 1974.

It has been approved by the Member Bodies of the following countries :

Australia	France	Romania
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Belgium	Hungary	Spain
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The Member Body of the following country expressed disapproval of the document on technical grounds :

Canada

Meat and meat products – Determination of nitrite content (Reference method)

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a reference method for the determination of the nitrite content of meat and meat products.

2 REFERENCE

ISO 3100, *Meat and meat products – Sampling*.

3 DEFINITION

nitrite content of meat and meat products: The nitrite content determined according to the procedure described in this International Standard and expressed as milligrams of sodium nitrite per kilogram (parts per million).

4 PRINCIPLE

Extraction of a test portion with hot water, precipitation of the proteins and filtration. In the presence of nitrite, development of a red colour by the addition of sulphanilamide and *N*-1-naphthylethylenediamine dihydrochloride to the filtrate and photometric measurement at a wavelength of 538 nm.

5 REAGENTS

All reagents shall be of analytical quality. The water used shall be distilled water or water of at least equivalent purity.

5.1 Solutions for precipitation of proteins

5.1.1 Reagent I

Dissolve 106 g of potassium ferrocyanide trihydrate [$K_4Fe(CN)_6 \cdot 3H_2O$] in water and dilute to 1 000 ml.

5.1.2 Reagent II

Dissolve 220 g of zinc acetate dihydrate [$Zn(CH_3COO)_2 \cdot 2H_2O$] and 30 ml of glacial acetic acid in water and dilute to 1 000 ml.

5.1.3 Borax solution, saturated

Dissolve 50 g of disodium tetraborate decahydrate ($Na_2B_4O_7 \cdot 10H_2O$) in 1 000 ml of tepid water and cool to room temperature.

5.2 Sodium nitrite standard solutions

Dissolve 1,000 g of sodium nitrite ($NaNO_2$) in water and dilute to 100 ml in a one-mark volumetric flask. Pipette 5 ml of the solution into a 1 000 ml one-mark volumetric flask. Dilute to the mark.

Prepare a series of standard solutions by pipetting 5 ml, 10 ml and 20 ml of this solution into 100 ml one-mark volumetric flasks and diluting to the mark with water. These standard solutions contain respectively 2,5 µg, 5,0 µg and 10,0 µg of sodium nitrite per millilitre.

The standard solutions and the dilute (0,05 g/l) sodium nitrite solution from which they are prepared shall be made up on the day of use.

5.3 Solutions necessary for colour development

5.3.1 Solution I

Dissolve, by heating on a water bath, 2 g of sulphanilamide ($NH_2C_6H_4SO_2NH_2$) in 800 ml of water. Cool, filter, if necessary, and add 100 ml of concentrated hydrochloric acid solution (ρ_{20} 1,19 g/ml), while stirring. Dilute to 1 000 ml with water.

5.3.2 Solution II

Dissolve 0,25 g of *N*-1-naphthylethylenediamine dihydrochloride ($C_{10}H_7NHCH_2CH_2NH_2 \cdot 2HCl$) in water. Dilute to 250 ml with water.

Store the solution in a well-stoppered brown bottle. It shall be kept in a refrigerator, for not longer than one week.

5.3.3 Solution III

Dilute 445 ml of concentrated hydrochloric acid solution (ρ_{20} 1,19 g/ml) to 1 000 ml with water.