

Nederlandse norm

# NEN-ISO 21422

(en)

Melk, zuivelproducten, zuigelingenvoeding en voeding voor volwassenen - Bepaling van chloride - Potentiometrische titratiemethode (ISO 21422:2018, IDT)

Milk, milk products, infant formula and adult nutritional - Determination of chloride - Potentiometric titration method (ISO 21422:2018, IDT)

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- ISO 21422:2018, IDT

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**Milk, milk products, infant  
formula and adult nutritionals —  
Determination of chloride —  
Potentiometric titration method**

*Lait, produits laitiers, formules infantiles et produits nutritionnels  
pour adultes — Détermination de la teneur en chlorures — Méthode  
par titrage potentiométrique*

Preview



Reference numbers  
ISO 21422:2018(E)  
IDF 242:2018(E)

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# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>1</b>
<b>5 Reagents</b> .....	<b>1</b>
<b>6 Preparation of solutions</b> .....	<b>2</b>
<b>7 Apparatus</b> .....	<b>3</b>
<b>8 Sample preparation</b> .....	<b>4</b>
8.1 Powders, for milk, milk products and infant formula.....	4
8.2 Cheese, for hard or rinded cheese.....	4
8.3 Butter.....	4
<b>9 Extraction</b> .....	<b>4</b>
9.1 Cheese.....	4
9.2 Butter.....	5
9.3 Milk, milk products, infant formula and adult nutritional products.....	5
9.4 Procedure.....	5
<b>10 Instrument operating conditions</b> .....	<b>5</b>
10.1 Check and maintenance of the combined silver electrode.....	5
10.2 Titration.....	5
10.3 Determination of very low amounts of chloride.....	6
10.4 Blank test.....	6
<b>11 System suitability test</b> .....	<b>6</b>
<b>12 Calculations</b> .....	<b>6</b>
<b>13 Precision</b> .....	<b>7</b>
13.1 General.....	7
13.2 Repeatability.....	7
13.3 Reproducibility.....	8
<b>14 Test report</b> .....	<b>9</b>
<b>Annex A (informative) Examples of titration end point determination</b> .....	<b>10</b>
<b>Annex B (informative) Precision data</b> .....	<b>12</b>
<b>Annex C (informative) Comparison of results between sample extraction with and without additional protein precipitation</b> .....	<b>14</b>
<b>Bibliography</b> .....	<b>16</b>

## 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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products* and the International Dairy Federation (IDF). It is being published jointly by ISO and IDF and separately by AOAC INTERNATIONAL. The method described in this International Standard is equivalent to the AOAC Official Method 2016.03: Chloride in Milk, Milk Products, Whey Powder, Infant Formula and Adult Nutritional Potentiometric titration.

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](http://www.iso.org/members.html).

**IDF (the International Dairy Federation)** is a non-profit private sector organization representing the interests of various stakeholders in dairying at the global level. IDF members are organized in National Committees, which are national associations composed of representatives of dairy-related national interest groups including dairy farmers, dairy processing industry, dairy suppliers, academics and governments/food control authorities.

ISO and IDF collaborate closely on all matters of standardization relating to methods of analysis and sampling for milk and milk products. Since 2001, ISO and IDF jointly publish their International Standards using the logos and reference numbers of both organizations.

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This document was prepared by the IDF Standing Committee on Analytical Methods for Composition and ISO Technical Committee ISO/TC 34, Food products, Subcommittee SC 5, Milk and milk products. It is being published jointly by ISO and IDF.

The work was carried out by the ISO/IDF Project Group C39 of the Standing Committee on Analytical Methods for Composition under the aegis of its project leader, Mr E. Konings (CH).

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# Milk, milk products, infant formula and adult nutritionals — Determination of chloride — Potentiometric titration method

## 1 Scope

This document specifies a method for the determination of chloride in milk, milk products, infant formula and adult nutritionals by potentiometry<sup>[1][2][3][4]</sup> with an analytical range of 0,35 mg chloride/100 g to 711,6 mg chloride/100 g product, or ready-to-feed products.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

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

Chloride is extracted from samples by mixing in warm water, or directly from ready-to-feed (RTF) products. After (optional) precipitation of proteins, chloride ions are titrated with standardized AgNO<sub>3</sub> solution potentiometrically, using a silver electrode to detect the end point.

## 5 Reagents

**5.1 Water**, purified, greater than 0,056 µS/cm (18 Mohm) (EMD Millipore<sup>1)</sup> Corp., Billerica, MA, USA, or equivalent).

**5.2 Sodium chloride** (NaCl), purity ≥ 99,5 %, certified reference material for titrimetry, Sigma Aldrich #71387<sup>1)</sup> or equivalent.

**5.3 Silver nitrate** (AgNO<sub>3</sub>), meeting analytical specification of European Pharmacopoeia (Ph. Eur), British Pharmacopoeia (BP), United States Pharmacopoeia (USP), assay 99,8 % to 100,5 %, Sigma-Aldrich 10220<sup>1)</sup>, or equivalent.

**5.4 Potassium ferrocyanide trihydrate** (K<sub>4</sub>Fe(CN)<sub>6</sub>·3H<sub>2</sub>O), puriss. p.a., American Chemical Society (ACS) reagent, reagent Ph. Eur., ≥ 99 %, Sigma-Aldrich # 31524<sup>1)</sup> or equivalent.

1) This is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO or IDF of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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