INTERNATIONAL STANDARD

ISO 4323

Second edition
2018-12

Soaps — Determination of chloride content — Potentiometric method

Savons — Dosage des chlorures — Méthode potentiométrique

Reference number
ISO 4323:2018(E)

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Published in Switzerland

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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 91, *Surface active agents*.

This second edition cancels and replaces the first edition (ISO 4323:1977), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Replaced water with water + isopropanol (1 + 1) as solvent in determination.

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.

Soaps — Determination of chloride content — Potentiometric method

1 Scope

This document specifies a potentiometric method for the determination of the chloride content of soaps, containing or not containing other surface active agents, and also of compounded 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 385, *Laboratory glassware — Burettes*

ISO 8212, *Soaps and detergents — Techniques of sampling during manufacture*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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/

3.1
chloride content of soap products
mass fraction of chloride, expressed as sodium chloride and in percent, determined in accordance with the procedure described in this document

4 Principle

Potentiometric titration of the chloride (Cl^-) ions with standard silver nitrate solution in an acidic medium, by using either a silver ion selective electrode plus a reference electrode or a combined electrode.

5 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 **Nitric acid**, approximately 6 mol/l solution.

5.2 **Silver nitrate**, approximately 0,1 mol/l solution.

Dissolve 8,5 g of silver nitrate in water in a 500 ml one-mark volumetric flask, dilute to the mark and mix. Store this solution capped in a dark amber-coloured flask. Standardize the solution before use (8.2).

5.3 Silver nitrate, approximately 0,01 mol/l solution.

Prepare this solution immediately before use by appropriate dilution of the standard silver nitrate solution (5.2).

5.4 Sodium chloride, 0,1 mol/l standard reference solution.

Weigh, to the nearest 0,001 g, 2,922 g of primary standard sodium chloride, previously dried for 2 h at 105 °C and cooled in a desiccator. Dissolve in a small quantity of water and transfer quantitatively to a 500 ml one-mark volumetric flask. Dilute to the mark and mix.

Potassium chloride can be used instead of sodium chloride but the weight of the chemical should be adjusted accordingly.

5.5 Sodium chloride, 0,01 mol/l standard reference solution.

Prepare this solution immediately before use by appropriate dilution of the standard reference sodium chloride solution (5.4).

5.6 Isopropanol.

6 Apparatus

Ordinary laboratory apparatus, and

6.1 Potentiometer, sensitivity 2 mV, covering the range −500 mV to +500 mV. Or an **autotitrator**.

6.2 Electrode, silver Ion Selective Electrode (ISE) with double junction reference electrode (10 % KNO_3 in outer junction and saturated AgCl in inner junction) or a combined electrode.

6.3 Electromagnetic stirrer.

6.4 Burette, capacity 50 ml, in accordance with the requirements of ISO 385, Class A.

6.5 Cheese grater or other similar grinder.

7 Sampling

The sampling shall be done in accordance with ISO 8212. The soap bar should be grated with a cheese grater (6.5). At least half of the bar should be grated to ensure a complete representation of the bar. The grated soap sample should be kept in an air-tight container to avoid moisture loss.

8 Procedure

8.1 Measurement temperature

In order to reduce the effects of thermal and electric hysteresis, take care that the temperatures of the electrodes, the water used for washings, the standard solutions and the test solution are as close to each other as possible. The temperatures of the standard solutions and the test solution shall not differ by more than 1 °C. The measurement temperature should be 25 °C whenever possible.