International Standard 5810

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Starches and derived products — Determination of chloride content — Potentiometric method

Amidons, fécules et produits dérivés — Détermination de la teneur en chlorures — Méthode potentiométrique

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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.

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It has been approved by the member bodies of the following countries :

Austria	Netherlands	USA
Egypt, Arab Rep. of	Portugal	USSR
France	Romania	
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No member body expressed disapproval of the document.

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Starches and derived products — Determination of chloride content — Potentiometric method

1 Scope and field of application

This International Standard specifies a potentiometric method for the determination of the chloride content of starches and derived products, except cationic starches and amyloids soluble when cold, the viscosity of these being too high to allow for correct stirring when titrating.

2 Principle

Potentiometric titration of a solution or suspension of the sample using a standard volumetric silver nitrate solution.

3 Reagents

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

3.1 Nitric acid, concentrated, ϱ_{20} 1,41 g/ml, containing 70 % (m/m) of HNO_3.

3.2 Silver nitrate, standard volumetric solution, $c(AgNO_3)$ = 0,05 mol/l[1] or 0,02 mol/l[1].

4 Apparatus

Ordinary laboratory apparatus, and in particular

4.1 Beakers, of capacity 250 ml.

4.2 One-mark pipettes, of capacity 1 ml, complying with the requirements of ISO 648.

4.3 Burettes, of capacity 10 ml, complying with the requirements of ISO 385/2.

4.4 Analytical balance.

4.5 Potentiometer or **pH-meter,** the scale of which shall be graduated in millivolts, and calibrated according to the manufacturer's instructions.

4.6 Electrodes.

4.6.1 Silver/silver chloride electrode.

This may be purchased or may be prepared from a silver electrode as follows:

— Immerse the silver electrode in an approximately 0,1 mol/l[2] potassium chloride solution and connect it to the positive pole of a 4 V battery.

— Connect the negative pole to a second silver or platinum electrode and pass the current through for about 5 min until the surface of the positive electrode becomes dark in colour. Wash this positive electrode carefully with water and keep in water until required for use.

4.6.2 Reference electrode.

Use an appropriate electrode system for the potentiometric determination of chloride (such systems are commercially available).

4.7 Variable speed stirrer.

5 Procedure

5.1 Preparation of test sample

Mix the sample thoroughly in order to make it homogeneous.

5.2 Test portion

Weigh, to the nearest 0,001 g, a suitable mass of test sample selected, according to the expected chloride content, from the following table:

Expected chloride content % (m/m) NaCl	Mass of test portion g
less than 0,05	25
0,05 to 0,2	15
0,2 to 0,5	5
0,5 to 1	2,5
1 to 5	0,5

1) Hitherto designated "0,05 N and 0,02 N standard volumetric solutions" respectively.

2) Hitherto designated "0,1 N solution".