INTERNATIONAL STANDARD

ISO 10349-7

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Photography — Photographic-grade chemicals — Test methods —

Part 7:
Determination of alkalinity or acidity

Photographie — Produits chimiques de qualité photographique — Méthodes d'essai —

Partie 7: Détermination de l'alcalinité ou de l'acidité

Reference number
ISO 10349-7:1992(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10349-7 was prepared by Technical Committee ISO/TC 42, *Photography*.

ISO 10349 consists of the following parts, under the general title *Photography — Photographic-grade chemicals — Test methods*:

— *Part 1: General*

— *Part 2: Determination of matter insoluble in water*

— *Part 3: Determination of matter insoluble in ammonium hydroxide solution*

— *Part 4: Determination of residue after ignition*

— *Part 5: Determination of heavy metals and iron content*

— *Part 6: Determination of halide content*

— *Part 7: Determination of alkalinity or acidity*

— *Part 8: Determination of volatile matter*

— *Part 9: Reaction to ammoniacal silver nitrate*

— *Part 10: Determination of sulfide content*

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— *Part 11: Determination of specific gravity*

— *Part 12: Determination of density*

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Photography — Photographic-grade chemicals — Test methods —

Part 7:
Determination of alkalinity or acidity

1 Scope

This part of ISO 10349 specifies a general test method for the determination of either the alkalinity or the acidity of photographic-grade chemicals.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 10349. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10349 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 10349-1:1992, *Photography — Photographic-grade chemicals — Test methods — Part 1: General.*

3 Hazards

See ISO 10349-1 for general hazard warnings and for details of the hazard code system used in this part of ISO 10349.

4 Reagents

See ISO 10349-1 for general requirements.

4.1 Standard hydrochloric acid solution, 0,01 mol/l (0,365 g/l).[1)]

4.2 Standard sodium hydroxide solution, free of carbonate, 0.01 mol/l (0,400 g/l).[1)]

4.3 Phenolphthalein indicator

Dissolve 0,1 g of phenolphthalein in 50 ml of methanol or ethanol, then dilute to 100 ml with water.

4.4 Carbon-dioxide-free water

Bring to a full boil, then cool, a quantity of water sufficient to run all of the analyses. Use this water within several hours after cooling.

5 Glassware

See ISO 10349-1 for requirements for glassware.

6 Sampling

See ISO 10349-1.

1) Commercially available analysed reagent is recommended. If standardized solutions are to be prepared, see any quantitative analytical chemistry text.

7 Procedure

Weigh the test portion specified in the appropriate International Standard and dissolve it in 100 ml of carbon-dioxide-free water (4.4). Add 3 drops of phenolphthalein indicator (4.3) and observe the colour of the test solution. If the test solution turns pink, determine the alkalinity using the procedure in 7.1. If the test solution remains colourless, determine the acidity using the procedure in 7.2.

7.1 Determination of alkalinity

Titrate the test solution with standard hydrochloric acid solution (4.1) to the first discharge of colour.

Calculate the alkalinity, expressed as a percentage by mass, from the formula

$$\frac{cVK}{m_0} \times 100$$

where

c is the concentration, in moles per litre, of the hydrochloric acid solution (4.1);

V is the volume, in millilitres, of hydrochloric acid solution (4.1) used for the titration;

K is the factor specified in the appropriate International Standard (0,1 times the gram equivalent weight of the alkali subject to test);

m_0 is the mass, in grams, of the test portion.

7.2 Determination of acidity

Titrate the test solution with standard sodium hydroxide solution (4.2) to the first pink colour that persists for 30 s.

Calculate the acidity, expressed as a percentage by mass, from the formula

$$\frac{c'V'K'}{m'_0} \times 100$$

where

c' is the concentration, in moles per litre, of the standard sodium hydroxide solution (4.2);

V' is the volume, in millilitres, of standard sodium hydroxide solution (4.2) used to reach the endpoint;

K' is the factor specified in the appropriate International Standard (0,1 times the gram equivalent weight of the acid subject to test);

m'_0 is the mass, in grams, of the test portion.

8 Test report

The test report shall specify the method used and the test result obtained.

It shall also mention all operating details not specified in this part of ISO 10349, or regarded as optional, together with details of any incidents which may have influenced the test result.

The test report shall include all information necessary for the complete identification of the sample.

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