INTERNATIONAL STANDARD

ISO 10349-10

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Photography — Photographic-grade chemicals — Test methods —

Part 10: Determination of sulfide content

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

Partie 10: Détermination de la teneur en sulfure

INTERNATIONAL ISO

Reference number
ISO 10349-10:1992(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 10349-10 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 10:
Determination of sulfide content

1 Scope

This part of ISO 10349 specifies a general test method for the determination of the sulfide content 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 Sulfide standard (0,001 mg S/ml).

Dissolve 1,5 g of sodium sulfide nonahydrate ($Na_2S{\cdot}9H_2O$) (DANGER: < S > < B >) in 500 ml of water in a 1 litre one-mark volumetric flask, then make up to the mark with water and mix well. Pipette 5 ml of this solution into a second 1 litre one-mark volumetric flask, make up to the mark with water, mix well and label this solution "sulfide standard".

4.2 Alkaline lead solution

4.2.1 Sodium hydroxide solution, 100 g/l (DANGER: < C >).

Add 10 g of sodium hydroxide (DANGER: << C >>) to 100 ml of water and mix well.

4.2.2 Lead acetate solution, 100 g/l (DANGER: << S >>).

Add 10 g of lead acetate trihydrate [$Pb(CH_3COO)_2{\cdot}3H_2O$] (DANGER: << S >>) to 100 ml of water and mix well.

WARNING — Lead acetate is a potential carcinogen and reproductive hazard.

4.2.3 Alkaline lead solution

Add the sodium hydroxide solution (4.2.1) slowly to the lead acetate solution (4.2.2) (<< S >>) until the precipitate that first forms redissolves, then add a small excess.

5 Apparatus

See ISO 10349-1 for requirements for glassware.

5.1 Two matched Nessler colour-comparison cylinders, each with a capacity of 50 ml.

6 Sampling

See ISO 10349-1.

7 Procedure

Weigh a test portion of 2,0 g ± 0,1 g and dissolve it in 25 ml of water. Transfer this test solution to one of the Nessler colour-comparison cylinders (5.1). Pipette the volume of sulfide standard (4.1) specified in table 1 (based on the appropriate test limit) into the second Nessler colour-comparison cylinder (5.1). To each Nessler colour-comparison cylinder, add 2 ml of alkaline lead solution (4.2). Make up the contents of each cylinder to the 50 ml mark with water and mix thoroughly. Compare the colour and clarity of the two solutions.

Any dark colour produced in the test solution shall not exceed that produced in the treated sulfide standard.

Table 1 — Test limits and volumes of sulfide standards

Test limit, % (*m/m*)		Volume of sulfide standard
as S	as Na_2S	ml
0,000 1	0,000 25	2
0,000 2	0,000 50	4
0,000 3	0,000 75	6
0,000 4	0,001 00	8
0,000 5	0,001 25	10

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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Descriptors: photography, photographic materials, photographic chemicals, tests, chemical analysis, determination of content, sulphides, comparison analysis.

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