

INTERNATIONAL STANDARD**2750**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Urea for industrial use — Measurement of colour in Hazen units (platinum-cobalt scale) of a urea-formaldehyde solution

Urée à usage industriel — Détermination de la coloration d'une solution urée-formaldéhyde, en unités Hazen (échelle platine-cobalt)

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

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.

International Standard ISO 2750 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and circulated to the Member Bodies in June 1972.

It has been approved by the Member Bodies of the following countries :

Austria	Ireland	South Africa, Rep. of
Belgium	Israel	Sweden
Bulgaria	Italy	Switzerland
France	Netherlands	Thailand
Germany	New Zealand	Turkey
Hungary	Poland	United Kingdom
India	Romania	U.S.S.R.

This International Standard has also been approved by the International Union of Pure and Applied Chemistry (IUPAC).

No Member Body expressed disapproval of the document.

Urea for industrial use — Measurement of colour in Hazen units (platinum-cobalt scale) of a urea-formaldehyde solution

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for measurement of the colour in Hazen units (platinum-cobalt scale) of a urea-formaldehyde solution.

2 REFERENCE

ISO 2211, *Liquid chemical products — Measurement of colour in Hazen units (platinum-cobalt scale)*.

3 PRINCIPLE

Visual comparison of the colour of a solution of the sample in formaldehyde, stabilized at a pH of $10 \pm 0,1$, with that of colour standards and expression of the result in terms of Hazen (platinum-cobalt) colour units.

For routine control purposes see ISO 2211, clause 2, paragraph 2.

4 DEFINITION

See ISO 2211, clause 3.

5 REAGENTS

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

In addition to the reagents specified in ISO 2211, clause 4, the following are required :

5.1 Formaldehyde, 350 to 370 g/l solution, stabilized with about 10 % (V/V) of methanol.

This solution shall be clear and shall not have a colour above 5 Hazen units (measured by the method specified in ISO 2211), after addition of the sodium hydroxide solution (5.2) to bring the pH to 10, and being left undisturbed for 15 min.

5.2 Sodium hydroxide, approximately 0,5 N solution.

6 APPARATUS

In addition to the apparatus specified in ISO 2211, clause 5, the following is required :

6.1 pH meter, fitted with a glass electrode suitable for measuring pH of the order of 10, and a calomel electrode, sensitivity 0,05 pH unit.

7 PREPARATION OF STANDARD COLORIMETRIC SOLUTIONS

7.1 Standard colorimetric solution, 500 Hazen units

See 6.1 of ISO 2211.

7.2 Standard Hazen matching solutions (diluted solutions)

See 6.2 of ISO 2211. The series from 0 to 50 Hazen units only is required.

7.3 Storage

See 6.3 of ISO 2211.

8 PROCEDURE

8.1 Test portion

Weigh, to the nearest 0,05 g, 56 g of the test sample.

8.2 Preparation of the test solution

Add the test portion (8.1) to 100 g of the formaldehyde solution (5.1) in a beaker of suitable capacity (200 ml, for example), bring the temperature to about 20 °C and stir until the test portion is completely dissolved.

Insert the two electrodes of the pH meter (6.1) in the solution and adjust the pH to $10 \pm 0,1$ by addition of the sodium hydroxide solution (5.2). Remove the electrodes and leave the solution undisturbed for 15 min.

8.3 Determination

See ISO 2211, clause 7. Take care that the temperatures of the solutions contained in the two Nessler tubes are the same.

9 EXPRESSION OF RESULTS

See ISO 2211, clause 8.

10 TEST REPORT

The test report shall include the following particulars :

- a) the reference of the method used;
- b) the results expressed in Hazen colour units;
- c) any unusual features noted during the determination;
- d) any operation not included in this International Standard or in the International Standard to which reference is made, or regarded as optional.

ANNEX

This document forms one of the following series on methods of test for urea for industrial use :

ISO/R 1592 – *Determination of nitrogen – Volumetric method.*

ISO/R 1593 – *Determination of alkalinity – Volumetric method.*

ISO/R 1594 – *Determination of ash – Gravimetric method.*

ISO/R 1595 – *Determination of iron content – 2,2'-bipyridyl photometric method.*

ISO 2749 – *Measurement of the pH of a solution of urea of conventional concentration (100 g/l) – Potentiometric method.*

ISO 2750 – *Measurement of colour in Hazen units (platinum-cobalt scale) of a urea-formaldehyde solution.*

ISO 2751 – *Determination of the buffer coefficient – Potentiometric method.*

ISO 2752 – *Measurement of the variation of pH in the presence of formaldehyde – Potentiometric method.*

ISO 2753 – *Determination of water content – Karl Fischer method.*

ISO 2754 – *Determination of biuret content – Photometric method.*