

INTERNATIONAL STANDARD

ISO
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Second edition
1996-08-15

Graphic technology — Prints and printing inks — Assessment of resistance to solvents

*Technologie graphique — Impressions et encres d'imprimerie —
Évaluation de la résistance aux solvants*

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Reference number
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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 2837 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

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This second edition cancels and replaces the first edition (ISO 2837:1974), of which it constitutes a technical revision.

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Introduction

This International Standard was originally in technical conformity with CEI specifications 04-61 of the European Committee of Paint, Printing Ink and Artists' Colours Manufacturers Associations. The solvent mixture to be applied for the test has been changed for environmental reasons.

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Graphic technology — Prints and printing inks — Assessment of resistance to solvents

1 Scope

This International Standard specifies a method of assessing the resistance of prints and printing inks to solvents.

It applies to all printing substrates such as paper, board, metals (thin metal sheet and plate) and plastic materials and to all printing processes, for example: lithographic, gravure, letterpress and flexo.

It does not apply to the assessment of the resistance of prints to varnishes from the method put forward in this International Standard since these may contain other solvents. For this purpose, the varnish itself shall be applied for the test.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 2834:—¹⁾, *Printing inks — Preparation of standardized prints for determination of resistance to physical and chemical agents.*

3 Test methods

3.1 Testing of prints

This subclause concerns production prints only.

3.1.1 Principle

A test piece cut from the print is immersed in the prescribed solvent for a given time. The colour change of the solvent, the discoloration and any change of the test piece are noted.

3.1.2 Apparatus and reagents

3.1.2.1 Test tube of thin colourless glass, with an inside diameter of approximately 16 mm and a height of approximately 160 mm.

3.1.2.2 Solvents

Use

- denaturated ethanol or
- the following mixture:
 - 60 % by volume denaturated ethanol;
 - 30 % by volume ethyl acetate;
 - 10 % by volume 1-methoxy-propanol-2; or
- any other solvent provided that it is stated in the test report.

1) To be published. (Revision of ISO 2834:1981)

3.1.3 Test procedure

Fill the test tube half way with the chosen solvent and submerge the test piece with an area of 6 cm² into the solvent. The test temperature shall be (23 ± 2) °C.

After 5 min, remove the test piece and note whether the solvent has changed colour. For this purpose, compare the test tube to a second test tube containing only the solvent, both test tubes placed in front of a white surface and illuminated from the side.

Dry the test piece for 10 min in an oven at approximately 40 °C.

3.1.4 Evaluation of results

- Compare the dried test piece to an untreated test piece.
- Note whether the solvent has caused a discoloration of the test piece.
- Note whether the ink film is completely intact and if its adhesion is maintained.
- Note whether the solvent has changed colour.

3.2 Testing of inks

Inks shall be tested by first preparing standardized prints as specified in ISO 2834. The standard prints shall then be tested and evaluated as specified in 3.1 of this International Standard.

If only a limited solvent resistance is required from the ink, the duration of the test shall not exceed 5 s.

4 Test report

The test report shall include the following information:

- a) reference to this International Standard;
- b) solvent used for the test;
- c) alterations observed, i.e. changes of the colour of the print and all changes attributed to the substrate;
- d) whether the solvent has changed colour or not;
- e) duration of the test if it differs from the specified 5 min (see 3.2, second paragraph).

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