Irish Standard
I.S. EN ISO 4630:2015

Clear liquids - Estimation of colour by the Gardner colour scale (ISO 4630:2015)

I.S. EN ISO 4630:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

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NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

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National Foreword

I.S. EN ISO 4630:2015 is the adopted Irish version of the European Document EN ISO 4630:2015, Clear liquids - Estimation of colour by the Gardner colour scale (ISO 4630:2015)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4630

December 2015

ICS 87.060.20

Supersedes EN ISO 4630-1:2004, EN ISO 4630-2:2004

English Version

Clear liquids - Estimation of colour by the Gardner colour scale (ISO 4630:2015)

Liquides clairs - Évaluation de la couleur au moyen de l'échelle de couleur Gardner (ISO 4630:2015)

Klare Flüssigkeiten - Bestimmung der Farbe nach der Gardner-Farbskala (ISO 4630:2015)

This European Standard was approved by CEN on 1 November 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN ISO 4630:2015) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 “Paints and varnishes” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4630-1:2004, EN ISO 4630-2:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 4630:2015 has been approved by CEN as EN ISO 4630:2015 without any modification.

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I.S. EN ISO 4630:2015

INTERNATIONAL STANDARD

ISO 4630

Third edition
2015-12-01

Clear liquids — Estimation of colour by the Gardner colour scale

Liquides clairs — Évaluation de la couleur au moyen de l'échelle de couleur Gardner

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 4630 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*, in collaboration with ASTM D 01.34, *Naval stores*. It has been harmonized with ASTM D 1544-04, *Standard test Method for Color of Transparent Liquids (Gardner Color Scale)* and ASTM D 6166-12, *Standard Test Method for Color of Naval Stores and Related Products (Instrumental Determination of Gardner Color)*.

This third edition of ISO 4630 cancels and replaces ISO 4630-1:2004 and ISO 4630-2:2004, which have been technically revised. The main changes are:

a) both standards have been combined into one standard;

b) the spectrophotometric method (formerly described in ISO 4630-2:2004) is the only one standardized now;

c) the original visual comparison of colours (formerly described in ISO 4630-1:2004) has been deleted, and the description of manufacture of the original Gardner colour standards has been moved to Annex A.

Clear liquids — Estimation of colour by the Gardner colour scale

1 Scope

This International Standard specifies a method for estimating the colour of optically clear, yellow/brownish coloured liquid products by means of the Gardner colour scale using colour-measuring instruments. The method uses the Gardner colour scale described in Annex A.

It is applicable to drying oils, varnishes and solutions of fatty acids, polymerized fatty acids, resins, tall oil, tall oil fatty acids, rosin and related products. The results might be invalid if other products are tested.

The method described provides a more precise way of measuring Gardner colour than a visual sample comparison using human eyes. It is applicable to products having colours from Gardner 1 to Gardner 18. The Gardner scale is not applicable to products with colours darker than 18. For products with colours lighter than Gardner 1 the method specified in ISO 6271 applies.

2 Normative references

The following referenced documents, in whole or in part, are normally referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 13632, *Binders for paints and varnishes — Rosin — Sampling and sample preparation for colour measurement*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

CIE Publication No. 15:2004, *Colorimetry*

3 Principle

The colour of a liquid sample is measured using an instrument capable of measuring transmitted colour and reporting in Gardner colours or in a colour system that can be converted into Gardner colours.

4 Apparatus and materials

4.1 Colour-measuring instrument, spectrophotometer capable of measuring transmitted colour (0°/180° geometry) and reporting the results in the Gardner colour scale. If such an instrument is not available, one may be used which is capable of measuring transmitted colour and reporting in tristimulus values using standard illuminant C and the 2° observer, described in CIE Publication No. 15:2004.

4.2 Absorption cells, 10 mm light path length recommended, unless a different path length is specified by the instrument manufacturer or

4.3 Glass tubes, 11 mm path length. Glass test tubes designed for a specific instrument may be used.