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**Clear liquids — Estimation of colour by  
the Gardner colour scale —**

**Part 2:  
Spectrophotometric method**

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

*Partie 2: Méthode spectrophotométrique*



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## Contents

Page

1	Scope .....	1
2	Normative references .....	1
3	Principle .....	1
4	Apparatus and materials .....	1
5	Sampling .....	2
6	Procedure .....	2
7	Expression of results .....	2
8	Precision .....	2
9	Test report .....	3
Annex A (normative) Calculating Gardner colour from chromaticity coordinates .....		4
Bibliography .....		6

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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

ISO 4630-2 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 6166-97, *Standard Test Method for Color of Naval Stores and Related Products (Instrumental Determination of Gardner Color)*.

ISO 4630 consists of the following parts, under the general title *Clear liquids — Estimation of colour by the Gardner colour scale*:

- Part 1: *Visual method*
- Part 2: *Spectrophotometric method*

# Clear liquids — Estimation of colour by the Gardner colour scale —

## Part 2: Spectrophotometric method

### 1 Scope

This part of ISO 4630 specifies a method for estimating, by means of the Gardner colour scale, the colour of clear, yellow/brown liquid products using colour-measuring instruments. The results might be invalid if other products are tested. The test uses the Gardner colour scale described in ISO 4630-1.

The method 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 method described provides a more precise way of measuring Gardner colour than that described in ISO 4630-1. It is applicable to products having colours from Gardner 1 to Gardner 18. The Gardner scale is not applicable to products with colours lighter than 1 or darker than 18.

### 2 Normative references

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

ISO 4630-1, *Clear liquids — Estimation of colour by the Gardner colour scale — Part 1: Visual method*

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

CIE Publication No. 15.2, *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**, capable of measuring transmitted colour ( $0^\circ/180^\circ$  geometry) and reporting the results in the Gardner colour scale described in ISO 4630-1. If such an instrument is not available, one may be used which is capable of measuring transmitted colour and reporting in tristimulus values or chromaticity coordinates using standard illuminant C and the  $2^\circ$  observer, described in CIE Publication No. 15.2.

**4.2 Glass absorption cells**, 10 mm path length, unless a different path length is specified by the instrument manufacturer.