
Analytical colorimetry —
Part 1:
Practical colour measurement

Analyse colorimétrique —
Partie 1: Mesurage pratique de la couleur

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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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](#)

The committee responsible for this document is ISO/TC 256, *Pigments, dyestuffs and extenders*

ISO 18314 consists of the following parts, under the general title *Analytical colorimetry*:

- *Part 1: Practical colour measurement*
- *Part 2: Saunderson correction, solutions of the Kubelka-Munk equation, tinting strength, hiding power*
- *Part 3: Special indices*

Analytical colorimetry —

Part 1: Practical colour measurement

1 Scope

This part of ISO 18314 specifies the method for determining the colour coordinates of a paint film. This method is only applicable to paint films that appear to be uniformly of one colour, i.e. monochromatic, when examined with normal vision. Paint films that do not completely hide a non-transparent substrate represent an opaque system and can be measured by using the procedure in this part of ISO 18314.

Luminescent paint films, transparent paint films, and translucent paint films (for example for display or lamp glass), retroreflecting paint films (for example for traffic signs), and metallic paint films are outside the scope of this part of ISO 18314.

2 Normative references

The following documents, in whole or in part, are normatively 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 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 1514, *Paints and varnishes — Standard panels for testing*

ISO 2808, *Paints and varnishes — Determination of film thickness*

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

3 Sample preparation

Take a representative sample of the paint to be tested as described in accordance with ISO 15528.

Examine and prepare the sample for testing in accordance with ISO 1513.

Prepare the test panels in accordance with ISO 1514. Apply the coating always in the same way (e.g. by spraying, brushing, or with application bars), dry or stove and, if necessary, condition the paint film as directed in the manufacturer's instructions or as otherwise agreed.

If the paint film is of reversible temperature-dependent colour, the temperature of the test sample should be maintained at $(23 \pm 2)^\circ\text{C}$ by appropriate measures (for example by the use of a thermostatically controlled sample holder). Paint films of irreversible temperature-dependent colour should be postconditioned, until the colour does not change any more. In the case of paint films that do not completely hide the substrate, the colour depends on the colour of the substrate and the film thickness, which should be determined by one of the procedures given in ISO 2808.

The paint film sample shall not be scratched and shall be free from dust and grease (e.g. fingerprints).

For process control of painted articles take representative test samples. The number of samples shall be agreed upon between the parties.