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Second edition
2023-01

Analytical colorimetry —

Part 2: Saunderson correction, solutions of the Kubelka-Munk equation, tinting strength, depth of shade and hiding power

Analyse colorimétrique —

Partie 2: Correction de Saunderson, solutions de l'équation de Kubelka-Munk, pouvoir colorant, profondeur de teinte et pouvoir masquant

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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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 256, *Pigments, dyestuffs and extenders,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 298, *Pigments and extenders,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 18314-2:2015), which has been technically revised.

The main changes are as follows:

— the title has been amended by “depth of shade”;

— the terms and definitions in Clause 3 have been aligned with ISO 18451-1;

— the document has been editorially revised and the bibliography has been updated.

A list of all parts in the ISO 18314 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Analytical colorimetry —

Part 2: Saunderson correction, solutions of the Kubelka-Munk equation, tinting strength, depth of shade and hiding power

1 Scope

This document specifies the Saunderson correction for different measurement geometries and the solutions of the Kubelka-Munk equation for hiding and transparent layers. It also specifies methods for the calculations of the tinting strength including the residual colour difference based on different criteria such as the depth of shade. Finally, methods for determining the hiding power are provided.

The procedures for preparing the samples for these measurements are not part of this document. They are agreed between the contracting parties or are described in other national or international standards.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
tinting strength
colour strength
measure of the ability of a colourant to colour other materials because of its absorptive power

[SOURCE: ISO 18451-1:2019, 3.122]

3.2
relative tinting strength
relative colour strength
percentage ratio of the *tinting strength* (3.1) of the colourant under test related to the tinting strength of a reference colourant

[SOURCE: ISO 18451-1:2019, 3.105]

3.3
tinting strength criterion
parameter that describes the colouring effect of a colourant, based on its absorption

Note 1 to entry: The tinting strength criteria used in this document are the following: