



SLOVENSKI STANDARD SIST EN ISO 18314-2:2023

01-marec-2023

Nadomešča:

SIST EN ISO 18314-2:2018

Analizna kolorimetrija - 2. del: Saundersonova korekcija, rešitve Kubelka-Munkove enačbe, barvna jakost, globina barve in kritnost (ISO 18314-2:2023)

Analytical colorimetry - Part 2: Saunderson correction, solutions of the Kubelka-Munk equation, tinting strength, depth of shade, hiding power (ISO 18314-2:2023)

Analytische Farbmessung - Teil 2: Saunderson-Korrektur, Lösungen der Kubelka-Munk-Gleichung, Farbstärke, Farbtiefe und Deckvermögen (ISO 18314-2:2023)

Analyse colorimétrique - Partie 2: Correction de Saunderson, solutions de l'équation de Kubelka-Munk, pouvoir colorant, profondeur de teinte, pouvoir masquant (ISO 18314-2:2023)

Ta slovenski standard je istoveten z: EN ISO 18314-2:2023

ICS:

17.180.20	Barve in merjenje svetlobe	Colours and measurement of light
87.060.10	Pigmenti in polnila	Pigments and extenders

SIST EN ISO 18314-2:2023

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 18314-2

January 2023

ICS 87.060.10

Supersedes EN ISO 18314-2:2018

English Version

**Analytical colorimetry - Part 2: Saunderson correction,
solutions of the Kubelka-Munk equation, tinting strength,
depth of shade, hiding power (ISO 18314-2:2023)**

Analyse colorimétrique - Partie 2: Correction de
Saunderson, solutions de l'équation de Kubelka-Munk,
pouvoir colorant, profondeur de teinte, pouvoir
masquant (ISO 18314-2:2023)

Analytische Farbmessung - Teil 2: Saunderson-
Korrektur, Lösungen der Kubelka-Munk-Gleichung,
Farbstärke, Farbtiefe und Deckvermögen (ISO 18314-
2:2023)

This European Standard was approved by CEN on 8 January 2023.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	3
------------------------	---

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 18314-2:2023

<https://standards.iteh.ai/catalog/standards/sist/cccc6766-41ee-4195-84f9-ada61ce615de/sist-en-iso-18314-2-2023>

European foreword

This document (EN ISO 18314-2:2023) has been prepared by Technical Committee ISO/TC 256 "Pigments, dyestuffs and extenders" in collaboration with Technical Committee CEN/TC 298 "Pigments and extenders" 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 July 2023, and conflicting national standards shall be withdrawn at the latest by July 2023.

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

This document supersedes EN ISO 18314-2:2018.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 18314-2:2023 has been approved by CEN as EN ISO 18314-2:2023 without any modification.

INTERNATIONAL
STANDARDISO
18314-2Second 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*SIST EN ISO 18314-2:2023

<https://standards.iteh.ai/catalog/standards/sist/cccc6766-41ee-4195-84f9-ada61ce615de/sist-en-iso-18314-2-2023>

Reference number
ISO 18314-2:2023(E)

© ISO 2023

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 18314-2:2023

<https://standards.iteh.ai/catalog/standards/sist/ceee6766-41ee-4195-84f9-ada61ce615de/sist-en-iso-18314-2-2023>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols and abbreviated terms.....	3
5 Saunderson correction.....	4
5.1 General.....	4
5.2 Incidence diffuse, observation 0° (d:0°).....	5
5.3 Incidence 45°, observation 0° (45°:0°).....	5
6 Solution of the Kubelka-Munk equations.....	5
6.1 General.....	5
6.2 Method 1.....	6
6.3 Method 2.....	6
7 Determination of relative tinting strength and residual colour difference of coloured pigments.....	7
7.1 General.....	7
7.2 Principle.....	7
7.3 Procedure.....	7
7.3.1 General.....	7
7.3.2 Evaluation of absorption at the absorption maximum.....	7
7.3.3 Evaluation of the weighted K/S sum.....	8
7.3.4 Evaluation by equalizing the tristimulus value, Y	9
7.3.5 Evaluation by equalizing the smallest of the tristimulus values X , Y , and Z	9
7.3.6 Evaluation by equalizing the depth of shade.....	10
8 Determination of hiding power of pigmented media.....	12
8.1 General.....	12
8.2 Example for white or light-coloured paints with a contrast ratio of 0,98 as hiding power criterion.....	12
9 Repeatability and reproducibility.....	13
Annex A (normative) Tables of coefficients for calculating $a(\varphi)$ values (standard illuminant D65 and 10° standard observer).....	14
Annex B (normative) Tables of coefficients for calculating $a(\varphi)$ values (illuminant C and 2° standard observer).....	16
Bibliography.....	18

ISO 18314-2:2023(E)

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).

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

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: