BS ISO 18314-5:2022

BSI Standards Publication

Analytical colorimetry

Part 5: Procedure for colorimetric determination of colour differences of object colours according to equidistant colour spaces

Documents
Document Sharing Hub

Full document details: BS ISO 18314-5:2022

National foreword

This British Standard is the UK implementation of ISO 18314-5:2022.

The UK participation in its preparation was entrusted to Technical Committee W/-, Consumer Products and Services Sector Policy and Strategy Committee.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2022
Published by BSI Standards Limited 2022

ISBN 978 0 539 07020 0

ICS 87.060.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2022.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: BS ISO 18314-5:2022

INTERNATIONAL STANDARD

ISO 18314-5

First edition
2022-11

Analytical colorimetry —

Part 5: Procedure for colorimetric determination of colour differences of object colours according to equidistant colour spaces

Analyse colorimétrique —

Partie 5: Mode opératoire pour la détermination colorimétrique des différences de couleur des couleurs d'objets selon des espaces colorimétriques équidistants

Reference number
ISO 18314-5:2022(E)

Documents
Document Sharing Hub

© ISO 2022

Full document details: BS ISO 18314-5:2022

COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

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

© ISO 2022 – All rights reserved

Documents
Document Sharing Hub

Full document details: BS ISO 18314-5:2022

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Procedure **1**
5 Test report **2**
Annex A (informative) **OSA-UCS colour space modified by Oleari et al.** **3**
Annex B (informative) **DIN99o colour space** **6**
Annex C (informative) **CAM16-UCS colour space** **12**
Bibliography **15**

© ISO 2022 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 18314-5:2022

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*.

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.

© ISO 2022 – All rights reserved
Documents
Document Sharing Hub
Full document details: BS ISO 18314-5:2022

Introduction

The scope of ISO/TC 256 is standardization in the field of colorants, i.e. pigments, dyestuffs and extenders. Standards on test metrics in this field is a very effective basis for the introduction and improvement of quality management systems. The consequent use of standardized test metrics within a company can cut down testing costs to a fraction of the original costs. Carefully written test metrics improve the precision of the test results. Standards for pigments, dyestuffs and extenders used as raw materials support the trade of these materials.

Several formulas had been developed in the past for the assessment of colour differences. For presenting colours in a colour space, the CIELAB (CIE 1976 $L^*a^*b^*$) colour space (adopted by ISO and published as ISO/CIE 11664-4)[1] and colour coordinates are the most prominent. For predicting colour differences, the International Commission on Illumination (CIE) has standardized CIEDE2000 (adopted by ISO and published as ISO/CIE 11664-6)[2]. The CIEDE2000 formula is intended to be applicable within the sample colour-difference magnitude of 0 to 5 CIELAB units. However, it does not have a new associated analytical colour space, but is still based on CIELAB.

For the steering and adjustment of colorant production or extender production in colorants industry, a uniform colour space (UCS) is an essential tool in addition to a colour difference formula. This requires adjusting colorant formulations in a colour space. Both corrective actions in production and the delivery specifications with customers are based on tolerance ellipsoids in the colour space applied. In CIE 217, different colour difference formulas and colour space models have been analysed using actual and reliable visual data sets. Several models gave similar performance, so no specific uniform colour space model or Euclidian colour-difference formula can be proposed performing statistically significantly better than CIEDE2000. However, three colour spaces stood out: OSA-UCS, DIN99o and CAM02-UCS, in chronological order of their publications. In this document, the actual editions of these models are standardized for the assessment of coloristic properties of pigments, dyestuff and extenders.

© ISO 2022 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 18314-5:2022

Documents
Document Sharing Hub

Full document details: BS ISO 18314-5:2022