

# INTERNATIONAL STANDARD

**ISO**  
**15994**

First edition  
2005-02-15

---

---

## Graphic technology — Testing of prints — Visual lustre

*Technologie graphique — Examen des imprimés — Lustre visuel*



Reference number  
ISO 15994:2005(E)

© ISO 2005

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	iv
Introduction .....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Principle .....	3
5 Apparatus .....	3
6 Determination of instrumental constants .....	3
6.1 General .....	3
6.2 Zero adjustment .....	3
6.3 Determination of $k$ .....	4
6.4 Determination of $N$ .....	4
7 Sampling and preparation of test pieces .....	4
8 Test procedure .....	4
9 Calculation .....	5
10 Precision .....	5
11 Test report .....	5
Annex A (normative) Apparatus for measuring visual lustre .....	6
Annex B (informative) Visual lustre and gloss values .....	9
Bibliography .....	11

## 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 15994 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

## Introduction

There is a large number of national and International Standards covering gloss measurement. However, no existing measure of gloss provides a measure of the visual lustre as perceived by the human observer over the wide range of materials used in printing and publishing. This International Standard defines a measure of surface appearance, identified as “visual lustre”, which is not intended for process control but rather for communication amongst designer, client and the printer of products for which the visual perception of the surface lustre is important.

The visual lustre as specified in this International Standard is a measure of the specular reflection from a sample with the diffuse component of the reflection minimized, and it should therefore correlate with the lustre as perceived by an observer. The test method specified makes it possible to compare the perceived lustre of a wide range of differently coloured prints in a meaningful way. A 45:45 geometry coupled with a 45:0 geometry (preferably, but not necessarily in the same instrument) is sufficient for the entire range that spans from the ideally diffusive surface to a highly reflective glass surface. It is recognized that the specular component of the total reflectance can also be determined using an instrument with spherical geometry, which can measure total (specular included) and diffuse (specular excluded) reflectance. However, the present 45/0:45/45 method is preferred because it is close to the geometry used for densitometers and colorimeters in graphic technology.

Comparative studies of the lustre of various printed and unprinted samples (see CIE Publ. 17.4) showed that the visual lustre defined in this International Standard correlates well with the lustre as perceived by an observer group, whereas the specular gloss (measured in accordance with ISO 2813 and ISO 8254-1 shows a much smaller correlation coefficient. An important prerequisite for such a comparison is that the geometric conditions for illuminating and observing the samples are identical to those realized in the measuring instrument.



# Graphic technology — Testing of prints — Visual lustre

## 1 Scope

This International Standard defines a measure of the apparent lustre of printed materials, termed “visual lustre”, which is intended for communication amongst designer, client and the printer of products for which the visual perception of the surface lustre is important.

This International Standard is not intended for process control in the printing industry, or in the papermaking and boardmaking industry, nor is it intended for the measurement of fluorescent materials or those which show metallic or pearlescent effects.

## 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 186, *Paper and board — Sampling to determine average quality*

ISO 2813:1994, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20 degrees, 60 degrees and 85 degrees*

ISO 8254-1:1999, *Paper and board — Measurement of specular gloss — Part 1: 75 degree gloss with a converging beam, TAPPI method*

ISO/CIE 10527, *CIE standard colorimetric observers*

CIE Publ. 15.3:2004, *Colorimetry*

CIE Publ. 17.4:1987, *International Lighting Vocabulary*

CIE Publ. 38.5:1977, *Radiometric and Photometric Characteristics of Materials and their Measurement*