Färg och lack – Bestämning av hårdhet enligt Buchholz (ISO 2815:2003)


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Paints and varnishes - Buchholz indentation test
(ISO 2815:2003)

This European Standard was approved by CEN on 25 March 2003.

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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 Management Centre has the same status as the official versions.

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Foreword

This document (EN ISO 2815:2003) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 "Paints and varnishes", 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This document supersedes EN ISO 2815:1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of ISO 2815:2003 has been approved by CEN as EN ISO 2815:2003 without any modifications.
Paints and varnishes — Buchholz indentation test

1 Scope

This International Standard describes a method for carrying out an indentation test on a single coating or multicoat system of paint, varnish or related product, using a Buchholz indentor. The length of the indentation produced is indicative of the residual deformation of the coating.

This indentation test is not suitable for products which contain a strong plasticizer.

NOTE 1 Since the indentation test, like other physical tests on paints, gives results which can be dependent upon time, temperature and humidity, comparable results will only be obtained if the test is carried out under well-defined conditions.

NOTE 2 Since the indentation depth depends upon the film thickness, the result obtained for the indentation length is only valid if the coating thickness exceeds a certain minimum value (see Annex A).

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 1513, Paints and varnishes — Examination and preparation of samples for testing
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 Principle

An indentor of specified size and shape is applied to the coating under defined conditions. The indentation length is measured in millimetres (see Annex A).

4 Apparatus

4.1 Indentation apparatus

This is shown in Figure 1. It consists essentially of a rectangular block of metal, which forms the body of the instrument, an indentor and two pointed feet.
The indentor is a sharpened sharp-edged metal wheel of hardened tool steel. The cross-section through its axis of rotation and its dimensions shall be as shown in Figure 2. Figures 3a) and 3b) show the shape of the indentation produced.

Figure 2 — Buchholz indentor

Key
1 sharp edge
2 indentor
3 coating
4 substrate
a) Shape of indentation

b) Indentation length \( l \) (mm) and indentation depth \( h \) (\( \mu \text{m} \)) (enlarged)

Key
1 coating

Figure 3 — Shape of indentation

The indentor and the two feet are so positioned in the body that, when the instrument is placed on a level surface, it is stable, its upper surface is horizontal and the effective load upon the indentor is \((500 \pm 5)\) g.

4.2 Measuring device

A suitable device for measuring the length of the indentation consists of a microscope with \( \times 20 \) magnification and an eyepiece fitted with a graduated scale capable of reading to 0.1 mm. The area of indentation shall be illuminated by means of a light source located so that the angle of incidence of the light exceeds 60°, as shown in Figure 4. The microscope shall be positioned vertically over the illuminated area and focused to bring the shadow produced by the indentation (see Figures 4 and 5) and the graduated scale together.

NOTE The position of the indentation mark can be located by means of a suitable template prepared from a triangular sheet of transparent plastics film (see Figure 6).

Figure 4 — Position of the light source and the microscope

Key
1 light source
2 microscope
3 indentation
4 coating
5 substrate