

# Vitreous and porcelain enamels — Determination of surface scratch hardness according to the Mohs scale

ICS 25.220.50

## National foreword

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The UK participation in its preparation was entrusted to Technical Committee STI/36, Vitreous enamel coatings.

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## Vitreous and porcelain enamels - Determination of surface scratch hardness according to the Mohs scale

Émaux vitrifiés - Détermination de la dureté superficielle  
suivant l'échelle de Mohs

Emails und Emailierungen - Bestimmung der Ritzhärte  
nach Mohs

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## Foreword

This document (EN 15771:2010) has been prepared by Technical Committee CEN/TC 262 "Metallic and other inorganic coatings", the secretariat of which is held by BSI.

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## 1 Scope

This European Standard specifies a method of test for determining the scratch hardness of the surface of vitreous and porcelain enamels.

## 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.

EN 15206, *Vitreous and porcelain enamels — Production of specimens for testing enamel on sheet steel, sheet aluminium and cast iron*

## 3 Terms and definitions

For the purposes of this document, the following term and definition applies.

**3.1**  
**Mohs scale**  
hardness scale of minerals, characterising the scratch resistance of various minerals through the ability of a harder mineral to scratch a softer mineral

## 4 Principle

The scratch hardness on the Mohs scale, of vitreous and porcelain enamels is determined by drawing certain minerals of defined hardness, on the Mohs scale, by hand over their surface.

## 5 Reference minerals

Reference minerals and their Mohs scale hardness are listed in Table 1.

**Table 1 — Reference minerals and their Mohs scale hardness**

Mineral	Mohs scale hardness
Talc	1
Gypsum	2
Calcite	3
Fluorspar	4
Apatite	5
Felspar	6
Quartz	7
Topaz	8
Corundum	9
Diamond	10

## 6 Test specimen

The test specimen shall be prepared in accordance with EN 15206.

## 7 Procedure

**7.1** Place the test specimen of the enamel that is under test on a firm support with the vitreous and porcelain enamel coating uppermost.

**7.2** By hand, draw across the surface of the test specimen a sharp edge of the reference mineral, starting with fluorspar, applying a uniform effort such that at the end of the test either the edge of the reference mineral or the surface of the test specimen is damaged. Scratch the surface of the test specimen two times with a sharp edge of the reference mineral.

**7.3** Examine the test specimen visually for scratches.

**7.4** If there are no scratches, repeat steps given in 7.1 to 7.3 with the reference mineral of the next highest Mohs scale hardness.

## 8 Assessment of result

For each test specimen note the mineral of highest Mohs scale hardness that produces no scratches.

In the case of a test specimen having variable scratch hardness, note the lowest Mohs scale hardness.

## 9 Test report

The test report shall include the following:

- a) all information necessary for identification of the test specimen;
- b) reference to this European Standard (EN 15771);
- c) reference minerals used;
- d) results of the test as specified in Clause 8, expressed as the Mohs scale hardness for each test specimen;
- e) any unusual features (anomalies) observed during the test;
- f) date of the test.

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