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**Paints and varnishes — Determination of  
scratch resistance —**

**Part 2:  
Variable-loading method**

*Peintures et vernis — Détermination de la résistance à la rayure —  
Partie 2: Méthode à charge variable*



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## 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 1518-2 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

It cancels and replaces ISO 12137-2:1997, which has been technically revised.

The main changes are the following:

- a) The number of the standard has been changed from ISO 12137-2 to ISO 1518-2 in order to group the scratch-resistance tests under the same number (ISO 1518).
- b) A definition of scratch has been introduced.
- c) The supplementary test conditions (formerly Annex A) have been integrated in the test report.
- d) The text has been editorially revised and the normative references have been updated.

ISO 1518 consists of the following parts, under the general title *Paints and varnishes — Determination of scratch resistance*:

— *Part 1: Constant-loading method*

— *Part 2: Variable-loading method*



# Paints and varnishes — Determination of scratch resistance —

## Part 2: Variable-loading method

### 1 Scope

This part of ISO 1518 specifies a method for determining, using a pointed stylus loaded with a continuously increasing load, the scratch resistance of a single coating of a paint, varnish or related product, or the upper layer of a multicoat system.

This test has been found to be useful in comparing the scratch resistance of different coatings. It is most useful in providing relative ratings for a series of coated panels exhibiting significant differences in scratch resistance.

Neither this part of ISO 1518 nor ISO 1518-1 specifies a method using a curved stylus, which is specified in ISO 12137. The choice between the three methods will depend on the particular practical problem.

### 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 test samples*

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 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

**scratch, n**

cut or gouge through the surface of a coating, made by contact with a sharp object

### 4 Principle

The product or system under test is applied at uniform thickness to flat panels of uniform surface texture. After drying/curing, the scratch resistance is determined using an automatic instrument which pushes the panels beneath a pointed stylus mounted so that it presses down perpendicularly on the surface of the test panel. The load on the test panel is increased continuously until the coating is scratched.