

INTERNATIONAL
STANDARD

ISO
3231

Second edition
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**Paints and varnishes — Determination of
resistance to humid atmospheres
containing sulfur dioxide**

*Peintures et vernis — Détermination de la résistance aux atmosphères
humides contenant du dioxyde de soufre*



Reference number
ISO 3231:1993(E)

ISO 3231:1993(E)**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.

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.

International Standard ISO 3231 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Sub-Committee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 3231:1974), of which it constitutes an editorial and minor technical revision.

Annex A forms an integral part of this International Standard.

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Paints and varnishes — Determination of resistance to humid atmospheres containing sulfur dioxide

1 Scope

This International Standard is one of a series of standards dealing with the testing of paints, varnishes and related products. This International Standard specifies a procedure for determining the resistance of a single-coat film or a multi-coat system of paints or related products to humid atmospheres containing sulfur dioxide.

The test method allows for different amounts of sulfur dioxide; a volume of 0,2 litre, measured at atmospheric pressure, is generally recommended for testing coatings of thickness not exceeding approximately 40 μm .

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1512:1991, *Paints and varnishes — Sampling of products in liquid or paste form.*

ISO 1513:1992, *Paints and varnishes — Examination and preparation of samples for testing.*

ISO 1514:1984, *Paints and varnishes — Standard panels for testing.*

ISO 2808:1991, *Paints and varnishes — Determination of film thickness.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

ISO 4628-2:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 2: Designation of degree of blistering.*

ISO 4628-3:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 3: Designation of degree of rusting.*

3 Principle

A coated test panel is exposed to specified humid atmospheres containing sulfur dioxide and the effects of exposure are evaluated by criteria agreed in advance between the interested parties, these criteria usually being of a subjective nature.

4 Required supplementary information

For any particular application, the test method specified in this International Standard needs to be completed by supplementary information. The items of supplementary information are given in annex A.

5 Reagent

5.1 Sulfur dioxide, either supplied from a gas cylinder or gas-generating device fitted with appropriate regulating and measuring apparatus to ensure the supply of the correct volume of gas, or generated within the cabinet, for example by mixing analytical-grade sodium sulfite, Na_2SO_3 , with an excess of analytical-grade sulfuric acid ($\rho = 1,84 \text{ g/ml}$).

NOTE 1 To obtain 0,2 (or 1,0) litre of sulfur dioxide, use $(1 \pm 0,025) \text{ g}$ [or $(5,25 \pm 0,12) \text{ g}$] of sodium sulfite and at least 0,9 g (or 4,2 g) of sulfuric acid. It is recommended to dissolve the sodium sulfite in 50 ml of water of at least grade 3 as specified in ISO 3696, to dilute the sulfuric acid 1:1 by adding it to the water, to place both reagents in the cabinet, to shut the door or hood and to add the diluted sulfuric acid to the sodium sulfite solution with the aid of a tilting device.