INTERNATIONAL STANDARD

Second edition 2004-07-01

Paints and varnishes — Natural weathering of coatings — Exposure and assessment

Peintures et vernis — Vieillissement naturel des revêtements — Exposition et évaluation



Reference number ISO 2810:2004(E)

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.

This document is a preview denerated by Figs.

© ISO 2004

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 Web www.iso.org

Published in Switzerland

Contents

Page

1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	General	2
5	Exposure racks	3
6	Apparatus for measurement of climatic factors	4
7	Test specimens	5
8	Procedure	6
9	Supplementary test conditions	6
10	Evaluation of properties	7
11	Precision	7
12	Test report	7
Ann	Annex A (normative) Environment and limate	
Ann	Annex B (informative) Classification of Annex B (informative)	
Bibli	Bibliography	

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 convertuees 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 applying 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 2810 was prepared by Technical Committee ISO/TC 35, Paints and varnishes, Subcommittee SC 9, General test methods for paints and varnishes.



Paints and varnishes — Natural weathering of coatings — Exposure and assessment

1 Scope

This International Standard specifies the conditions which need to be taken into consideration in the selection of the type of natural weathering and the natural weathering procedure to be used to determine the resistance of coatings or coating systems (direct weathering or weathering behind window glass).

Natural weathering is used to determine the resistance of coatings or coating systems (denoted in the following text simply by coatings) to the sen's radiation and the atmosphere.

Special atmospheric influences, Q.g. industrial pollution, are not taken into account in this International Standard.

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 1514, Paints and varnishes — Standard panels of testing

ISO 2808, Paints and varnishes — Determination of film thickness

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

ISO 3668, Paints and varnishes - Visual comparison of the colour of paints

ISO 3696, Water for analytical laboratory use — Specification and test pethods

ISO 4628-1, Paints and varnishes — Evaluation of degradation of coating Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 1: General introduction and designation system

ISO 4628-2, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering

ISO 4628-3, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting

ISO 4628-4, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking

ISO 4628-5, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 5: Assessment of degree of flaking

ISO 4628-6, Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 6: Rating of degree of chalking by tape method

ISO 4628-7, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 7: Assessment of degree of chalking by velvet method

ISO 4628-8, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 8: Assessment of degree of delamination and corrosion around a scribe

ISO 4628-10, Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 10: Assessment of degree of filiform corrosion

ISO 7724-1, Paints and varishes — Colorimetry — Part 1: Principles

ISO 7724-2, Paints and varnishes — Colorimetry — Part 2: Colour measurement

ISO 7724-3, Paints and varnishes Colorimetry — Part 3: Calculation of colour differences

ISO 8565:1992, Metals and alloys *Appropriate Corrosion testing* — General requirements for field tests

ISO 12944-2, Paints and varnishes — Corosion protection of steel structures by protective paint systems — Part 2: Classification of environments

EN 13523-19, Coil coated metals — Test methods — Part 19: Panel design and method of atmospheric exposure testing

SAE J1976:2002, Outdoor weathering of exterior materials

WMO, *Guide to meteorological instruments and method of observation*, WMO Publication No. 8, sixth edition, World Meteorological Organization, Geneva, 1996

3 Terms and definitions

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

3.1

durability

ability of a coating to resist the deleterious effect of its environment

3.2

time of wetness

period during which an exposed coating has visible water present on it

4 General

The durability of a coating during natural weathering depends on how, where and when the coating is weathered. Therefore, these parameters and the intended use of the coating shall be taken into account when exposures are carried out.

In particular, the following parameters shall be considered:

- a) The location of the exposure site, for example industrial, marine, rural. In choosing sites, those which differ markedly in the type or level of pollution from the normal shall be avoided, unless they are appropriate to the intended end use of the coating under test.
- b) The height, angle and orientation of the exposure rack. These parameters will govern the extent to which the specimens are affected, for example by dew, frost and atmospheric pollutants.
- c) The nature of the terrain on which the rack is constructed (for example concrete, grass, gravel). The terrain may affect the climatic conditions around the specimen under test. It would rarely be feasible to select an