INTERNATIONAL STANDARD

ISO 4623-1

Second edition
2018-10

Paints and varnishes — Determination of resistance to filiform corrosion —

Part 1: Steel substrates

Peintures et vernis — Détermination de la résistance à la corrosion filiforme —
Partie 1: Subjectiles en acier

Reference number
ISO 4623-1:2018(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Principle **2**
5 Limitations **2**
6 Sampling **2**
7 Apparatus **2**
8 Reagents **2**
9 Test panels **2**
9.1 Material and dimensions 2
9.2 Preparation and coating 2
9.3 Drying and conditioning 3
9.4 Thickness of coating 3
10 Procedure **3**
10.1 Number of determinations 3
10.2 Scribing the test panels 3
10.3 Testing 4
10.3.1 General 4
10.3.2 Dipping technique 4
10.3.3 Salt fog technique 4
10.4 Inspection of test panels 5
11 Evaluation of the degree of filiform corrosion **5**
12 Precision **5**
13 Test report **6**
Annex A (informative) **Guidance notes on maintaining exposure conditions using saturated ammonium sulfate solution** **7**
Bibliography **8**

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 4623-1:2000), which has been technically revised. The main changes compared to the previous edition are as follows:

a) the text has been aligned with ISO 4623-2;

b) the introduction of ISO 4623-2 has been copied;

c) the definition of filiform corrosion has been aligned with ISO 4623-2;

d) in 10.2 a reference to ISO 17872 for the cutting tool has been added;

e) in 10.3.3 the time of exposure of the test panels to neutral salt fog has been shortened from 24 h to 4 h;

f) the supplementary test conditions previously in Annex A have been integrated into the test report;

g) the text has been editorially revised and the normative references have been updated.

A list of all parts in the ISO 4623 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A scribe mark cut through a coating of paints or varnishes on metal can give rise to various types of corrosion, such as blistering of the coating, corrosion of the metal under the coating, as well as filiform corrosion. Filiform corrosion tends to develop under specific conditions of temperature and relative humidity and when traces of acids, bases, or salts are present either under the paint coating or at breaks in the coating. These conditions are often found in marine and/or industrial environments. A certain amount of under-corrosion of the coating, starting from the scribe mark, will always occur. Filiform corrosion, however, is considered to be present only if the typical pattern in the form of threads is obvious.