SS 5 : Part H4 : 2020
ISO 4628-4:2016, MOD
(ICS 87.040)

SINGAPORE STANDARD

Methods of test for paints, varnishes and related materials

– Part H4 : Assessment of degree of cracking

Singapore Standards Council

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The content of this Singapore Standard was approved on 31 March 2020 by the Chemical Standards Committee (CSC) under the purview of the Singapore Standards Council.

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CSC consists of the following members:

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CSC sets up the Technical Committee on Surface Coatings to oversee the preparation of this standard. The Technical Committee consists of the following members:

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Secretary	:	Ms Wendy Chai	*Standards Development Organisation @Singapore Chemical Industry Council*
Members	:	Mrs Grace Cheok-Chan	*Green Mark Department, Building and Construction Authority*
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		Dr Yin Xi Jiang	*Singapore Surface Engineering Association*

The Technical Committee sets up the Working Group on Methods of Test for Paints, Varnishes and Related Materials to prepare this standard. The Working Group consists of the following experts who contribute in their *individual capacity*:

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The organisations in which the experts of the Working Group are involved are:

AdMaterials Technologies Pte Ltd
Akzo Nobels Paints (Asia Pacific)
Haruna Paint Pte Ltd
Nippon Paint (Singapore) Co. Pte Ltd
Pidilite Innovation Centre Pte Ltd
Setsco Services Pte Ltd
TÜV SÜD PSB Pte Ltd

Contents

National Foreword

This Singapore Standard was prepared by the Working Group on Methods of Test for Paints, Varnishes and Related Materials set up by the Technical Committee on Surface Coatings under the purview of CSC.

It is a revision of SS 5 : Part H4 : 2013 "Methods of test for paints, varnishes and related materials – Part H4: Designation of degree of cracking".

This standard is a modified adoption of ISO 4628-4:2016, "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", published by the International Organization for Standardization. The deviation is as follows:

Clause	Modification
1 Scope	Delete Paragraph 2
	"ISO 4628-1 defines the system used for designating the quantity and size of defects and the intensity of changes in appearance of coatings and outlines the general principles of the system. This system is intended to be used, in particular, for defects caused by ageing and weathering, and for uniform changes such as colour changes, for example yellowing."
	Explanation: Paragraph 2 of the scope is not applicable as ISO 4628-1 was not adopted as a Singapore Standard.

To facilitate identification, the technical deviation is marked by a margin on the left of the standard.

NOTE 1 – Reference to International Standards are replaced by applicable Singapore Standards.

NOTE 2 – Where numerical values are expressed as decimals, the comma is read as a full point.

For an overview of other parts to Singapore Standard 5, it is recommended to read the information in SS 5 : Part 0 "General introduction" which is issued separately.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "Mature Standards". Mature Standards will not be subject to further review, unless there are requests to review such standards.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*

3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This third edition cancels and replaces the second edition (ISO 4628-4:2003), which has been technically revised with the following changes:

a) lower limit for visual assessment of defects has been introduced in Table 2;

b) a normative reference to ISO 13076 for illumination for the assessment has been added.

ISO 4628 consists of the following parts, under the general title *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance*:

— *Part 1: General introduction and designation system*

— *Part 2: Assessment of degree of blistering*

— *Part 3: Assessment of degree of rusting*

— *Part 4: Assessment of degree of cracking*

— *Part 5: Assessment of degree of flaking*

— *Part 6: Assessment of degree of chalking by tape method*

— *Part 7: Assessment of degree of chalking by velvet method*

— *Part 8: Assessment of degree of delamination and corrosion around a scribe or other artificial defect*

— *Part 10: Assessment of degree of filiform corrosion*

Methods of test for paints, varnishes and related materials – Part H4 : Assessment of degree of cracking

1 Scope

This part of ISO 4628 specifies a method for assessing the degree of cracking of coatings by comparison with pictorial standards.

ISO 4628-1 defines the system used for designating the quantity and size of defects and the intensity of changes in appearance of coatings and outlines the general principles of the system. This system is intended to be used, in particular, for defects caused by ageing and weathering, and for uniform changes such as colour changes, for example yellowing.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 13076, *Paints and varnishes — Lighting and procedure for visual assessments of coatings*