Singapore Standards Council

SS 5 : Part D2 : 2013(2018)
ISO 9117-3:2010, IDT
(ICS 87.040)

SINGAPORE STANDARD

Methods of test for paints, varnishes and related materials

– Part D2 : Surface drying time (ballotini method)

[ISO title : Paints and varnishes – Drying tests – Part 3: Surface-drying test using ballotini]

Confirmed 2018

Published by

Enterprise Singapore

SS 5 : Part D2 : 2013(2018)
ISO 9117-3:2010, IDT
(ICS 87.040)

SINGAPORE STANDARD

Methods of test for paints, varnishes and related materials

– Part D2 : Surface drying time (ballotini method)

ISBN 978- 981-48-4353-98-4

This Singapore Standard was approved by the Chemical Standards Committee on behalf of the Singapore Standards Council on 28 June 2013.

First published, 1970
First revision, 1988
Second revision, 2003
Third revision, 2013

The Chemical Standards Committee, appointed by the Standards Council, consists of the following members:

		Name	Capacity
Chairman	:	Dr Keith Carpenter	*Member, Standards Council*
Deputy Chairman	:	Dr Tay Kin Bee	*Individual Capacity*
Secretary 1	:	Ms Elane Ng	*Standards Development Organisation@Singapore Chemical Industry Council*
Secretary 2	:	Ms Jillian Chin	*Standards Development Organisation@Singapore Chemical Industry Council*
Members	:	Ms Ang Chin Chin	*Maritime and Port Authority of Singapore*
		Ms Feng Ruili	*SPRING Singapore*
		Mr Koh Min Ee	*National Environment Agency*
		Mr Terence Koh	*Singapore Chemical Industry Council Limited*
		Prof Lee Hian Kee	*National University of Singapore*
		Dr Lee Tong Kooi	*Chemical Metrology Division, Health Sciences Authority*
		Mr Leong Kwai Yin	*Individual Capacity*
		Prof Leung Pak Hing	*Nanyang Technological University*
		Mr Lim Eng Kiat	*Individual Capacity*
		Mr Lim Kian Chye	*Housing & Development Board*
		Dr Jerry Liu Jian Lin	*Singapore Water Association*
		Dr Loh Wah Sing	*Individual Capacity*
		Dr Ng Sek Yeo	*Singapore Polytechnic*
		Ms Pamela Phua	*Singapore Paint Manufacturers' Association*
		Mr Seah Khen Hee	*Individual Capacity*
		Mr Tan Yok Gin / Mr Chia Poh Soo	*PUB, the National Water Agency*
Co-opted Members	:	Prof Andy Hor	*Individual Capacity*
		Assoc Prof Thomas Liew	*Individual Capacity*
		Mr Nee Pai How	*Individual Capacity*
		Mr Pitt Kuan Wah	*Individual Capacity*
		Mr Wang Hui Hua	*Individual Capacity*

The Technical Committee on Surface Coatings, appointed by the Chemical Standards Committee, consists of representatives from the following organisations:

		Name	Capacity
Chairman	:	Mr Lim Eng Kiat	*Individual Capacity*
Secretary	:	Ms Elane Ng	*Standards Development Organisation@Singapore Chemical Industry Council*
Members	:	Ms Grace Cheok-Chan	*Green Mark Department, Building and Construction Authority*
		Dr Dien Pandiman	*Pidilite Innovation Centre Pte Ltd*
		Mr Richard Lai	*Singapore Institute of Architects*
		Mr Lim Kian Chye	*Housing & Development Board*
		Mr Raymond Lim	*Singapore Institute of Surveyors and Valuers*
		Mr Andrew Lioe	*Association of Property and Facility Managers*
		Mr Lu Jin Ping	*AdMaterials Technologies Pte Ltd*
		Ms Neerada Poduval	*Singapore Environment Council*
		Ms Pamela Phua	*Singapore Paint Manufacturers' Association*
		Mr Rajendran Ramamoorthy	*Building and Construction Authority*
		Mr Reza Motamedi Kia	*Singapore Green Building Council*
		Ms Catherine Wong	*Setsco Services Pte Ltd*
		Mrs Wong-Lin Tai Hoe	*TUV SUD PSB Pte Ltd*
		Dr Yin Xi Jiang	*Singapore Surface Engineering Association*

The Working Group, appointed by the Technical Committee to assist in the preparation of this standard, comprises the following experts who contribute in their *individual capacity*:

		Name
Convenor	:	Dr Li Sihai
Secretary	:	Ms Elane Ng
Members	:	Ms Karen Chen
		Ms Guo Yilin
		Ms Kee Pei Ling
		Mr Lim Kian Chye
		Ms Shirley Lim
		Mr Simplicio Escano Sala

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

AkzoNobel Paints (Singapore) Pte Ltd
DNT Singapore Pte Ltd
Housing & Development Board
Nippon Paint (Singapore) Co Pte Ltd
Pidilite Innovation Centre Pte Ltd
Setsco Services Pte Ltd
TUV SUD PSB Pte Ltd

(blank page)

Contents

National Foreword

This Singapore Standard was prepared by the Working Group on the Review of Singapore Standard SS 5 Methods of Test for Paints, Varnishes and Related Materials appointed by the Technical Committee on Surface Coatings under the direction of the Chemical Standards Committee.

This is a revision of SS 5 : Part D2 : 2003 'Methods of test for paints, varnishes and related materials – Surface-drying test (ballotini method)'. It is an identical adoption of the International Standard ISO 9117-3 : 2010 'Paints and varnishes – Drying tests – Part 3 : Surface-drying test using ballotini', published by the International Organization for Standardization.

In Singapore, the temperature and humidities for conditioning and testing are standardised at (27±2) °C and (80±5) % respectively to reflect the local climatic conditions.

The references to International Standards shall be replaced by the following Singapore Standards:

International Standard	Corresponding Singapore Standard
ISO 9117-3 : 2010	SS 5 : Part D2
ISO 15528	SS 5 : Part A1
ISO 1513	SS 5 : Part A2
ISO 1514	SS 5 : Part A3
ISO 2808	SS 5 : Part B1

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

Acknowledgement is made for the use of information from the above reference.

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.

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 9117-3 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This first edition of ISO 9117-3 cancels and replaces ISO 1517:1973, which has been technically revised. The main changes are as follows:

(a) the method has been integrated into the ISO 9117 series as Part 3, for determination of the drying of paints and varnishes;

(b) a “principle” clause has been added;

(c) text from the former introduction listing supplementary information has been integrated into the test report.

ISO 9117 consists of the following parts, under the general title *Paints and varnishes — Drying tests*:

- *Part 1: Determination of through-dry state and through-dry time*
- *Part 2: Pressure test for stackability*
- *Part 3: Surface-drying test using ballotini*

The following parts are under preparation:

- *Part 4: Test using a mechanical recorder*
- *Part 5: Modified Bandow-Wolff test*

Methods of test for paints, varnishes and related materials – Part D2 : Surface drying time (ballotini method)

1 Scope

This part of ISO 9117 specifies a test method for determining the surface-drying characteristics of a coating of a paint or varnish which dries by the action of air or by chemical reaction of its components.

The method is not intended to apply to stoving products.

The method described may be carried out:

- as a “go/no go” test, by determining the surface-drying state after a specified time, to assess compliance with a particular requirement;
- by determining the surface-drying state at suitable intervals until the surface-drying time is obtained.

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*