

SINGAPORE STANDARD

**Suitability of non-metallic products for
use in contact with water intended for
human consumption with regard to their
effect on the quality of the water**

– Part 2:3: Methods of test – Appearance of water



Published by

Enterprise
Singapore

SS 375 : Part 2:3 : 2015

(ICS 13.060.20)

SINGAPORE STANDARD

Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water

– Part 2:3: Methods of test – Appearance of water

All rights reserved. Unless otherwise specified, no part of this Singapore Standard may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and microfilming, without permission in writing from Enterprise Singapore. Request for permission can be sent to: standards@enterprisesg.gov.sg.

ISBN 978-981-4557-90-0

SS 375 : Part 2:3 : 2015

This Singapore Standard was approved by the Chemical Standards Committee on behalf of the Singapore Standards Council on 11 June 2015.

First endorsement, 1994

First published, 2002

First revision, 2015

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

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

The Technical Committee on Water, appointed by the Chemical Standards Committee and responsible for the preparation of this standard, consists of representatives from the following organisations:

	Name	Organisation
Chairman	: Dr Lim Mong Hoo	<i>Individual Capacity</i>
Secretary	: Ms Jillian Chin	<i>Standards Development Organisation @Singapore Chemical Industry Council</i>
Members	: Dr Cai Qiantao	<i>GE Power & Water</i>
	Dr Fang Hai Jun	<i>Sembcorp Industries Ltd</i>
	Mrs Indrani Rajaram	<i>National Environment Agency</i>
	Mr Kok Tze Weng	<i>PUB, the National Water Agency</i>
	Ms Ivy Latour	<i>Singapore Chemical Industry Council Limited</i>
	Ms Lily Lien	<i>United Envirotech Ltd</i>
	Mr Lim Chiow Giap	<i>Individual Capacity</i>
	Assoc Prof Lim Teik Thye	<i>Nanyang Environment and Water Research Institute</i>
	Dr Harold Mao	<i>Hyflux Ltd</i>
	Assoc Prof Ng How Yong	<i>Singapore Water Association</i>
	Prof Ong Say Leong	<i>NUS Environmental Research Institute</i>
	Er. Soon Ai Kwang	<i>Association of Consulting Engineers Singapore</i>

The Working Group on Drinking Water appointed by the Technical Committee on Water to assist in the review of this standard, comprises the following experts who contributed in their *individual capacity*:

	Name
Convenor	: Dr Zhang Lifeng
Secretary	: Ms Jillian Chin
Members	: Mr Thomas Ang
	Dr Chen Huayi
	Mr Chiang Dong Pheng
	Mr Choo Swee Kiat
	Mr Christopher Chua
	Mr Lei Zhi Pei
	Mr Lim Chiow Giap
	Dr Ng How Yong
	Mr Amos Phua
	Mr Soo Tiong Hong

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

Longus Consulting

PUB, the National Water Agency

Setsco Services Pte Ltd

Singapore Sanitary Ware Importer and Exporter Association

Singapore Water Association

Standard Chemical Corporation Pte Ltd

TUV SUD PSB Pte Ltd

Contents

	Page
National Foreword _____	6
Foreword _____	7
1 Scope _____	8
2 Normative references _____	8
3 Terms and definitions _____	8
4 Principle _____	9
5 Reagents _____	9
6 Apparatus _____	9
7 Samples _____	10
8 Test procedure _____	10
9 Expression of results _____	11
10 Test report _____	11
 Annex	
A Test sequence (informative) _____	13
 Figure	
A.1 Test sequence _____	13

National Foreword

This Singapore Standard was prepared by the Working Group on Drinking Water appointed by the Technical Committee on Water under the direction of the Chemical Standards Committee.

This is a revision of SS 375 : Part 2:3: 2001. It is an identical adoption of BS 6920-2.3: 2000 + A1: 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 2: Methods of test – Section 2.3: Appearance of water', and is implemented with permission of BSI Standards Limited.

The following editorial changes were made:

<u>Clauses/Subclauses</u>	<u>Modification</u>
Clause 1 – NOTE; Bibliography	<i>Deleted the reference to UK regulations</i> <i>Explanation: These regulations are not applicable to Singapore.</i>

Where appropriate, the words 'British Standard' have been replaced by 'Singapore Standard'. The references to the BS 6920 series have been replaced by the following Singapore Standards:

BS 6920 Series	Corresponding Singapore Standard
BS 6920	SS 375
BS 6920-1: 2014	SS 375: Part 1: 2015
BS 6920-2.1: 2014	SS 375: Part 2:1: 2015
BS 6920-2.3	SS 375: Part 2:3
BS 6920-2.4	SS 375: Part 2:4
BS 6920-3	SS 375: Part 3

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

Foreword

Publishing information

This subsection of BS 6920 is published by BSI Standards Limited, under license from The British Standards Institution and came into effect on 15 May 2000. It was prepared by Subcommittee EH/3/7, *Effects of materials on water quality*. Amendment No. 1 was prepared by Technical Committee EH/6, *Effects of materials on water quality*.

Supersession

BS 6920-2.3:2000 + A1:2014 supersedes BS 6920-2.3:2000, which is withdrawn.

Relationship with other publications

BS 6920 is published in several parts, namely *Part 1: Specification*, *Part 2: Methods of test*, *Part 3: High temperature tests* and *Part 4: Method for the GCMS identification of water leachable organic substances*.

Part 2 is further subdivided into a number of sections and subsections as follows.

Section 2.1: Samples for testing;

Section 2.2: Odour and flavor of water;

Subsection 2.2.1: General method of test;

Subsection 2.2.2: Method of testing odours and flavours imparted to water by multi-layered hoses and pipes;

Subsection 2.2.3: Method of testing odours and flavours imparted to water by hoses for conveying water for food and drink preparation;

Section 2.3: Appearance of water;

Section 2.4: Growth of aquatic microorganisms test;

Section 2.5: The extraction of substances that may be of concern to public health;

Section 2.6: The extraction of metals.

Information about this document

This edition introduces technical changes but it does not reflect a full review or revision of the standard.

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to the health if adequate precautions are not taken.

This British Standard refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 2:3: Methods of test –Appearance of water

1 Scope

This section of SS 375 describes a method designed to assess the ability of a product to impart any noticeable colour or turbidity to water intended for human consumption. The method is applicable to all types of non-metallic product used in contact with water intended for human consumption.

NOTE The National Regulator may specify additional provisions in some cases and will assess the significance of the results obtained.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of SS 375. For dated references, subsequent amendments to or revisions of any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

SS 375 : Part 2:1 : 2015, *Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 2:1: Methods of test – Samples for testing.*

BS EN ISO 3696: 1995, *Water for analytical laboratory use – Specification and test methods.*

BS EN ISO 7027: 2000, *Water quality – Determination of turbidity.*

BS EN ISO 7887: 2011, *Water quality – Examination and determination of colour.*