

SS 375:Part 1:2015(2024)+A1:2024
BS 6920-1:2014, MOD
(ICS 13.060.20)

SINGAPORE STANDARD

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

– Part 1 : Specification

Incorporating Amendment No. 1

Confirmed 2024

SS 375:Part 1:2015(2024)+A1:2024

BS 6920-1:2014, MOD

(ICS 13.060.20)

SINGAPORE STANDARD

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

– Part 1 : Specification

Published by Enterprise Singapore

All rights reserved. Unless otherwise specified, no part of this publication 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.

© BSI 2014

© Enterprise Singapore 2024

ISBN 978-981-5237-01-6

Contents

	Page
National Foreword _____	4
Foreword _____	6
1 Scope _____	8
2 Normative references _____	8
3 Terms and definitions _____	9
4 Odour and flavour of water _____	9
5 Appearance of water _____	10
6 Growth of aquatic microorganisms _____	10
7 The extraction of substances that may be of concern to public health _____	11
8 The extraction of metals and boron _____	12
9 High temperature tests _____	13
10 Odour and flavour of water from hoses intended for food and drink application _____	13
 Annexes	
A Scheme of testing showing the relationship between the standards of the SS 375 series (informative) _____	15
B Odour and flavour of water test – Assessment of results (informative) _____	16
 Table	
1 Maximum allowable concentrations of certain metals _____	12
 Figures	
A.1 Scheme of testing showing the relationship between the standards of the SS 375 series _____	15
B.1 Chlorine-free water test results _____	16
B.2 Chlorinated water test results _____	17
 Bibliography _____	 18

National Foreword

This Singapore Standard was prepared by the Working Group on Water Quality set up by the Technical Committee on Water under the purview of the Environment and Resources Standards Committee.

This standard is a confirmation of SS 375: Part 1: 2015. It is a modified adoption of BS 6920-1:2014, “Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1: Specification”, published by the British Standards Institution. It incorporates Amendment No.1, denoted by $\boxed{A1}$ and $\langle A1 \rangle$.

In this standard, certain modifications due to national requirements and the particular needs of the local industry have been made. These technical deviations and additional information have been added directly to the clauses to which they refer. A complete list of modifications, together with their justifications, is given as follows:

<u>Clauses/Subclauses</u>	<u>Modification</u>
Foreword;	
Clause 1 – NOTE;	<i>Deleted the reference to UK regulations</i>
Clause 7 – NOTES 2 & 3; Clause 8 – Commentary & Table 1 NOTE 2;	<i>Explanation: These regulations are not applicable to Singapore.</i>
Bibliography – Other publications	
Clause 1 – NOTE	<i>Added the phrase “such as for organic and/or inorganic compounds” after “In some cases national authorities or regulators might require specific additional testing”</i> <i>Explanation: This would provide some clarity for the issue on organics and long term effects.</i>
Clause 4 – COMMENTARY	<i>Replaced the reference to the EC Directive with “The WHO Guidelines for Drinking-Water Quality, $\boxed{A1}$ Fourth Edition (Incorporating with the first and second addenda) $\langle A1 \rangle$ states that “water should be free of tastes and odours that would be objectionable to the majority of consumers.”</i> <i>Explanation: The EC Directive is not applicable to Singapore.</i>

Clause 8 – Table 1

A1 *Included the elements, barium (maximum allowable concentration of 1300 µg/L, reporting limits of 100 µg/L, expression of results as Ba µg/L) and silver (maximum allowable concentration of 100 µg/L, reporting limits of 10 µg/L, expression of results as Ag µg/L) to the list;*

Replaced the maximum allowable concentrations for the following elements:

- Aluminium with 100 µg/L
- Boron with 1000 µg/L
- Cadmium with 3 µg/L

Explanation: This reflects the lower values of BS 6920 and local criteria.” A1

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

BS 6920 Series	Corresponding Singapore Standard
BS 6920	SS 375
BS 6920-2.2.1	SS 375 : Part 2:2:1
BS 6920-2.2.2	SS 375 : Part 2:2:2
BS 6920-2.2.3	SS 375 : Part 2:2:3
BS 6920-2.3	SS 375 : Part 2:3
BS 6920-2.4	SS 375: Part 2:4
BS 6920-2.5	SS 375: Part 2:5
BS 6920-2.6	SS 375: Part 2:6
BS 6920-3	SS 375: Part 3

NOTE 1 – Where appropriate, the words “British Standard” are read as “Singapore Standard”.

NOTE 2 – Reference to International/Overseas Standards are replaced by applicable Singapore Standards or Technical References.



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

Publishing information

This part of BS 6920 is published by BSI Standards Limited, under  licence  from The British Standards Institution, and came into effect on 30 June 2014. It was prepared by Technical Committee EH/6, *Effects of materials on water quality*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 6920 supersedes BS 6920-1:2000, which is withdrawn.

Relationship with other publications

The following parts and sections of BS 6920 have been published.

- Part 1: *Specification*;
- Part 2: *Methods of test*;
- Section 2.1: *Samples for testing*;
- Section 2.2: *Odour and flavour 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 composite pipes and tubes*;
- 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*.
- Part 3: *High temperature tests*;
- Part 4: *Method for the GCMS identification of water leachable organic substances*.

A diagram showing the relationship of the various parts and sections of this standard is given in Annex A.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

- A statement has been added to the scope that this part of BS 6920 is not applicable to metallic materials and products;
- The definition of the term “product” has been revised (see 3.3);
- The pass/fail requirements of the odour and flavour of water test have been clarified (see Clause 4), and supporting flow diagrams in a new Annex B;

- Interpretation of the results of the growth of aquatic microorganisms test have been clarified (see Clause 6);
- The fact that some cold water testing is required before high temperature tests are carried out has been clarified (see Clause 9).

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to 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.

Use of this document

It has been assumed in the preparation of this part of BS 6920 that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, ^{A1} subclause J.1.1, which states, “Requirements should be expressed using wording such as: ‘When tested as described in Annex A, the product shall...’”. This means only those products that are capable of passing the specified test will be deemed to conform to this standard.

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 ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1 : Specification

1 Scope

This part of SS 375 specifies requirements for the suitability of non-metallic (including cementitious) materials and products, and also water fittings and components, pipes and materials used in coating, protection, lining, jointing, sealing and lubrication, for use in contact with either hot or cold water intended for human consumption, with regard to their effect on the quality of the water.

This standard is not applicable to metallic materials and products.

NOTE In some cases national authorities or regulators might require specific additional testing, such as for organic and/or inorganic compounds, to be carried out on extracts from certain types of these materials; interpretation of the results from additional testing is the responsibility of the requesting body.

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 ^{A1} amendments ^{A1} applies.

- a) SS 375 : Part 2:2:1, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:2:1: Methods of test – Odour and flavour of water – General method of test;*
- b) SS 375 : Part 2:2:2, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:2:2: Methods of test - Odour and flavour of water – Method of testing odours and flavours imparted to water by multi-layered hoses and pipes;*
- c) SS 375 : Part 2:2:3, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:2:3: Methods of test - Odour and flavour of water – Method of testing odours and flavours imparted to water by hoses for conveying water for food and drink preparation;*
- d) SS 375 : Part 2:3, *Suitability of non-metallic ^{A1} materials ^{A1} and 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;*
- e) SS 375 : Part 2:4, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:4 Methods of test – Growth of aquatic microorganisms test;*
- f) SS 375 : Part 2:5, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:5 Methods of test – The extraction of substances that may be of concern to public health;*
- g) SS 375 : Part 2:6, *Suitability of non-metallic ^{A1} materials ^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 2:6 Methods of test - The extraction of metals;*

- h) SS 375 : Part 3, *Suitability of non-metallic ^{A1}materials^{A1} and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water - Part 3 : High temperature tests.*