

SINGAPORE STANDARD

# **Specification for hot-applied thermoplastic road marking materials**

– Part 2 : Road performance



**SS 498 : Part 2 : 2002**  
(ICS 93.080.20)

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– Part 2 : Road performance

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Standards  
SPRING Singapore  
1 Fusionopolis Walk,  
#01-02 South Tower, Solaris  
Singapore 138628  
Email : [standards@spring.gov.sg](mailto:standards@spring.gov.sg)

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	Mr Victor Wee Chye Hin	<i>Singapore Institute of Architects</i>
	Ms Yong Mei Yoke	<i>Individual Capacity</i>

The Working Group on Hot-applied Thermoplastic Road Marking Materials appointed by the Technical Committee and responsible for the preparation of this standard consists of representatives from the following organisations:

	<b>Name</b>	<b>Organisation</b>
<b>Convenor</b>	: Mr Wally Toh Kow Tee	<i>Intramart Pte Ltd</i>
<b>Secretary</b>	: Ms Jesline Lim Lay Eng	<i>SPRING Singapore</i>
<b>Members</b>	: Mr Phan Chin Poh	<i>PWD Corporation Pte Ltd</i>
	Ms Stella Soh	<i>Revertex Finewaters Sdn Bhd</i>
	Mrs Wong-Lin Tai Hoe	<i>PSB Corporation Pte Ltd</i>
	Mr Yoong Chin Chong /	<i>Land Transport Authority</i>
	Mr Wong Chee Hoong	

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## Foreword

This Singapore Standard was prepared by the Working Group on Hot-applied Thermoplastic Road Marking Materials appointed by the Technical Committee on Surface Coatings under the direction of the Chemical Standards Committee.

Since the introduction and application of hot melt thermoplastic road marking material in Singapore in early 1980, the authorities concerned, the Public Works Department in particular, adopted the British Standard BS 3262 : 1979 as the guideline for specification when drawing up legal tenders for all road marking jobs involving hot melt thermoplastic material. As some of the British practices and conditions are not applicable in Singapore, it was considered necessary to have a Singapore Standard for thermoplastic road marking material. The Working Group adopted the British Standard BS 3262 Parts 1, 2, and 3 with the necessary amendments to suit local conditions and be used as the Singapore Standard.

This standard is an adoption of BS 3262 : Part 2 : 1999 and is implemented with the permission of British Standards Publishing Ltd. However, BS 3262 : Part 2 : 1999 had been declared obsolete and replaced by BS EN 1824 : 1998 Road marking materials – Road trials and BS EN 1871 : 2000 Road marking materials – physical properties by BSI. The Working Group considered the BS EN standards but found that the BS 3262 : Part 2 : 1999 was more applicable for our local use.

The deviations between this part of the standard and BS 3262 : Part 2 : 1999 are as follows:

<u>Clause / Subclause</u>	<u>Modifications</u>												
1	Addition of 'red' material.												
3	Insertion of the following note: 'Note – It is believed that present products available in the industry can last more than 2 years but recommended tests to be conducted to provide data for review in 5 years' time.'												
4.1.2	Addition of 'red' material.												
4.2.1	'40' in BS 3262-2 : 1999, subclause 5.2.1, has been substituted with '45'.												
	NOTE 1 Addition of the following: 'A suitable method of determining the retroreflectivity of beaded lines is currently being developed.'												
4.2.4	First paragraph of 5.2.4 in BS 3262-2 : 1999 has been deleted and replaced by the following: 'The retroreflectivity for the test area on each surface beaded stripe shall be as follows:												
	<table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">White road marking</th> <th style="text-align: center;">Yellow road marking</th> </tr> </thead> <tbody> <tr> <td>Immediately after application and hardening:</td> <td style="text-align: center;"><math>&gt; 300 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> <td style="text-align: center;"><math>&gt; 200 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> </tr> <tr> <td>&lt; 5 months after application:</td> <td style="text-align: center;"><math>&gt; 150 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> <td style="text-align: center;"><math>&gt; 100 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> </tr> <tr> <td>&gt; 5 months after application:</td> <td style="text-align: center;"><math>&gt; 100 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> <td style="text-align: center;"><math>&gt; 100 \text{ mcd lx}^{-1}\text{m}^{-2}</math></td> </tr> </tbody> </table>		White road marking	Yellow road marking	Immediately after application and hardening:	$> 300 \text{ mcd lx}^{-1}\text{m}^{-2}$	$> 200 \text{ mcd lx}^{-1}\text{m}^{-2}$	< 5 months after application:	$> 150 \text{ mcd lx}^{-1}\text{m}^{-2}$	$> 100 \text{ mcd lx}^{-1}\text{m}^{-2}$	> 5 months after application:	$> 100 \text{ mcd lx}^{-1}\text{m}^{-2}$	$> 100 \text{ mcd lx}^{-1}\text{m}^{-2}$
	White road marking	Yellow road marking											
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> 5 months after application:	$> 100 \text{ mcd lx}^{-1}\text{m}^{-2}$	$> 100 \text{ mcd lx}^{-1}\text{m}^{-2}$											
	There is no requirement for black and red road marking.'												

- A.1 NOTE  
Substitution of 'Department of Transport' in BS 3262-2 : 1999 with 'Land Transport Authority'
- A.3 BS 3262 -2 : 1999 has been deleted and replaced by the following: 'The site for road performance trials is to be specified by LTA.'
- A.4 BS 3262-2 : 1999 has been deleted and replaced by the following: 'Applicants wishing to submit samples for testing in the road performance trials should formally notify the Land Transport Authority.'
- A.5 Substitution of 'supervising authority' in BS 3262-2 : 1999 with 'Land Transport Authority'
- A.6.1 Substitution of 'supervising authority' in BS 3262-2 : 1999 with 'accredited laboratory'
- Annex B NOTE 1 – immediately after 'Laying and examination of material'  
Substitution of note 1 in BS 3262-2 : 1999 with 'An Accredited Laboratory will superintend the application of the material and will carry out the evaluation of each duplicate stripe in accordance with B.1 and B.2. A panel of three assessors comprising a representative from the Land Transport Authority, the applicant and a neutral body will verify that the material is applied as described in B.1 and B.2.'
- NOTE 2 – immediately after 'Laying and examination of material'  
Substitution of 'Department of Transport' in BS 3262-2 : 1999 with 'Land Transport Authority'.
- NOTE 3 – immediately after 'Laying and examination of material'  
Substitution of 'local highway authority' in BS 3262-2 : 1999 with 'Land Transport Authority'.
- B.1 Substitution of '100' in BS 3262-2 : 1999 with '200'
- Air temperature  
Substitution of '10 °C to 25°C' in BS 3262-2 : 1999 with '26 °C to 32 °C'.
- Relative humidity  
Amended to 'not greater than 85% to 95%'.
- Road surface temperature  
Amended to '40 °C to 60 °C'.
- B.2.5 Addition of the following, after the first sentence: ' ..at the rate specified in 6.2 of SS 498 : Part 3 : 2002.'
- B.2.6 Amendment of BS 3262-2 : 1999 to be as follows: 'After periods of 6, 12, 18 and 24 months from the date on which the initial tests were conducted, retest the stripes in accordance with B.2.3 and Annex C as appropriate. Determine the degree of erosion in accordance with Annex D. For materials being assessed for compliance with class A, carry out the tests additionally after periods of 18 months and 24 months.'
- Annex E Substitution of 'Supervising Authority' in BS 3262-2 : 1999 with 'Accredited Laboratory'

In addition to the above amendments, the following in BS 3262-2 : 1999 have been omitted:

- (i) Subclause 5.1.3 and notes 1 and 2
- (ii) A.2; deletion of '12 months'.
- (iii) A.6
- (iv) Clause A.7.2; second paragraph and Table A.1.
- (v) The following text under B.1 ' Apply the stripes in a single pattern on the left-hand lane of the carriageway transverse to its length.'

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

**NOTE**

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The revisions of Singapore Standards are announced through the issue of either amendment slips or revised editions.*
2. *Compliance with a Singapore Standard does not exempt users from legal obligations.*



## **Specification for hot-applied thermoplastic road marking materials – Part 2 : Road performance**

### **1 Scope**

This Part of SS 498 specifies the performance requirements for type approval of white thermoplastic materials complying with SS 498 : Part 1 : 2002, which have been melted and applied hot to road surfaces using screeding or sprayed application, as thin superimposed markings for centre lines, edge lines, pedestrian crossing stripes and the like. It does not apply to thermoplastic materials intended to be inset into road surfaces.

Provision is made for the results obtained on the white material to be applicable to yellow, red and black materials where the composition of these materials is the same as for the white material except for the pigment of the thermoplastic material. Provision is also made for the performance of the materials to be tested with the addition of solid glass beads.

Annex A lists the preconditions for road performance trials.