

SS 589:2013(2022)+C1:2022
(ICS 93.080.20)

SINGAPORE STANDARD

Specification for hot-applied thermoplastic road marking materials – Materials, performance and application

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marking materials – Materials, performance and
application**

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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.

The three parts of SS 498 : 2002 Hot-applied thermoplastic road marking materials (Part 1 - Constituent materials and mixtures, Part 2 - Road performance and Part 3 - Application of material to road surfaces) were reviewed in 2013. The review resulted in the withdrawal SS 498 Parts 1 to 3 as well as the development of this new SS 589. This standard is a consolidation of the 3 parts of SS 498 : 2002, incorporating specifications of better quality thermoplastic road marking materials and the latest practices adopted in Australia and Europe. It also made reference to the specifications from Land Transport Authority. The requirements for profile road markings were also included.

This standard is a performance-oriented standard which specifies the performance requirements and provides flexibility to manufacturer to formulate the thermoplastic road marking materials to meet the required field performances. The wet night visibility requirements of thermoplastic road markings were introduced in this standard to enhance road safety of motorists in wet night condition. In addition, methods of measuring the field performance of the thermoplastic road marking material in terms of durability and skid resistance were incorporated. On the environmental aspect, this standard specifies the limit on lead chromate content in thermoplastic road marking materials and tests to be conducted to check the presence of toxic substances in glass beads.

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 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.*
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Specification for hot-applied thermoplastic road marking materials – Materials, performance and application

1 Scope

This standard specifies the material and site performance requirements for hot-applied white, yellow, red and black thermoplastic road marking materials and their constituents.

The thermoplastic road marking material is a solvent-free marking substance supplied in block, granular or powder forms. It consists of an aggregate which is light coloured except for black thermoplastic road marking material, pigment extender, bound together with a thermoplastic resin, plasticised as necessary. Provision is made for reflectorisation using solid glass beads of a suitable grade and quality to improve the visibility of road markings throughout its lifespan and during rainy nights.

Thermoplastic road marking materials are melted and applied hot to road surfaces, using screeded or sprayed application. They form a cohesive thin film by cooling and adhere to the road surface for centre lines, edge lines, pedestrian crossing stripes, profiled markings etc.

This standard does not apply to inlaid thermoplastic road marking materials.

2 Normative references

The following referenced documents are indispensable for the application of this document (the latest edition of the referenced document including any amendments applies).

| | |
|----------------|---|
| ASTM E1710 | Standard test method for measurement of retroreflective pavement marking materials with CEN-prescribed geometry using a portable retroreflectometer |
| ASTM E2177 | Standard test method for measuring the coefficient of retroreflected luminance (R_L) of pavement markings in a standard condition of wetness |
| ISO 591-1 | Titanium dioxide pigments for paints, Part 1 : Specifications and methods of test |
| EN 1871 | Road marking materials – Physical properties |
| EN 1436 | Road marking materials – Road marking performance for road users |
| EN 1423 | Road marking materials – Drop on materials – Glass beads, antiskid aggregates and mixture of two |
| SS 5 : Part C6 | Methods of test for paints, varnishes and related materials, Part C6 : Determination of low concentrations of lead, cadmium and cobalt in paint by atomic absorption spectroscopy |