

Coated macadam (asphalt concrete) for roads and other paved areas —

Part 2: Specification for transport, laying and compaction

ICS 75.140; 93.080.20

Committees responsible for this British Standard

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- British Civil Engineering Test Equipment Manufacturer’s Association
- County Surveyors’ Society
- Department for Transport
- Institute of Asphalt Technology
- Institution of Civil Engineers
- Institution of Highways and Transportation
- Mastic Asphalt Council Ltd.
- Quarry Products Association
- Refined Bitumen Association
- Road Surface Dressing Association
- Scottish Office (Roads Directorate)
- Society of Chemical Industry
- Transport Research Laboratory (TRL)
- United Kingdom Accreditation Service

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Foreword

This part of BS 4987 has been prepared by Subcommittee B/510/1. It supersedes BS 4987-2:2001, which is withdrawn.

The 2001 edition of BS 4987-2 introduced a number of technical changes, including the deletion of references to tar and cut-back bitumen and changes to bitumen grades to introduce the grades now specified in BS EN 12591 (for further details see BS 4987-1:2005). It also introduced the terms “base (roadbase)”, “binder course” and “surface course” in place of the previous terms “roadbase”, “basecourse” and “wearing course” in order to introduce users of this standard to these terms which will be used in future European asphalt standards.

This edition introduces changes to mix terminology consequent on the implementation of the European standards for aggregates. It also introduces new requirements and advice for tack coats and bond coats in 5.5.

This standard comprises two parts:

Part 1: Specification for constituent materials and for mixtures;

Part 2: Specification for transport, laying and compaction.

Requirements for transporting coated macadam mixtures and for site work are covered by this part of BS 4987. Requirements are also given for resurfacing work including the covering of concrete and sett paving, and for the use of tack coats.

Provision is made to measure the in situ compaction of certain types of macadam in terms of either air voids or the percentage refusal density (PRD) as described in BS 598-104.

It has been assumed in the drafting of this part of BS 4987 that the execution of its provisions is entrusted to appropriately qualified and experienced people.

Annex A and Annex B are informative.

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 does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 2 to 13 and a back cover.

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1 Scope

This part of BS 4987 specifies requirements for the transport, laying and compaction of coated macadam mixtures conforming to BS 4987-1 from the time that they leave the mixing plant until they are placed on the road ready to receive a superimposed layer or traffic. It also includes requirements for preliminary work at the laying site needed to ensure that the substrate is ready to receive the coated macadam.

This standard does not include requirements for macadams incorporating bitumen emulsion binders.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. 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.

BS 434-1:1984, *Bitumen road emulsions (anionic and cationic) — Part 1: Specification for bitumen road emulsions*.

BS 434-2, *Bitumen road emulsions (anionic and cationic) — Part 2: Code of practice for use of bitumen road emulsions*.

BS 598-100, *Sampling and examination of bituminous mixtures for roads and other paved areas — Part 100: Methods for sampling for analysis*.

BS 598-104, *Sampling and examination of bituminous mixtures for roads and other paved areas — Part 104: Methods of test for the determination of density and compaction*.

BS 598-109, *Sampling and examination of bituminous mixtures for roads and other paved areas — Part 109: Methods for the assessment of the compaction performance of a roller and recommended procedures for the measurement of the temperature of bituminous mixtures*.

BS 4987-1:2005, *Coated macadam for road and other paved areas — Part 1: Specification for constituent materials and for mixtures*.

BS 6100, *Glossary of building and civil engineering terms*.

HIGHWAYS AGENCY. *Specification for Highway Works*. London: The Stationery Office.

3 Terms and definitions

For the purposes of this part of BS 4987, the terms and definitions given in BS 6100 and BS 4987-1 apply.

4 Transport and delivery

4.1 Transport

4.1.1 Coated macadams other than those to be laid cold shall be transported to the site in insulated lorries and shall be sheeted so as to prevent an excessive drop in temperature and to ensure their protection against adverse weather conditions.

4.1.2 Diesel oil shall not be used on the floor of the vehicle to facilitate the discharge of the mixed materials.

In the case of porous asphalt, only soap solution, water or a proprietary release agent shall be used.

NOTE Sealing grit, sand, soap solution or a proprietary release agent may be used on the floor of the vehicle to facilitate discharge of the mixed material. The amount used should be kept to a minimum by brushing.

4.2 Delivery

The macadam shall be delivered at a temperature which enables the material to be compacted in accordance with the requirements of Clause 7.

NOTE For recommended suitable delivery temperatures see Annex A (Table A.1).

5 Preparatory works at the laying site

5.1 General

NOTE The surface on which the coated macadam is to be laid should be of adequate strength to bear the equipment which will be used to lay the coated macadam. It is desirable that some form of permanent lateral support should be given to the layer of coated macadam.

The surface on which the coated macadam is to be laid shall be free from ice, standing water, loose materials and foreign matter. Any previous layer shall be compacted using a roller exerting at least as great a load per unit width of roll as that to be used for rolling the coated macadam.

5.2 Surface level tolerances

The sum of the deviations in the level of different pavement layers shall not result in a reduction of the nominal surface course thickness by more than 12.5 % from that specified.

For road sites or similar areas the permitted deviation of the level of the finished surface at any point on the constructed surface of the pavement layer from the true surface level shall not exceed the following values:

- a) sub-base to receive base (roadbase): $\begin{smallmatrix} +10 \\ -30 \end{smallmatrix}$ mm;
- b) base (roadbase) to receive surface course: ± 8 mm;
- c) base (roadbase) to receive binder course: ± 15 mm;
- d) binder course to receive surface course on roads: ± 6 mm;
- e) binder course to receive surface course on areas other than roads, e.g. car parks, playgrounds: ± 10 mm.

5.3 Resurfacing

5.3.1 General

5.3.1.1 Where an existing surface is to be used as a base (roadbase) or binder course, the maximum depression under a 3 m straightedge placed longitudinally or under a template placed transversely shall not exceed:

- a) 25 mm when the resurfacing is to consist of two course work; or
- b) 13 mm when the resurfacing is to be a single surface course.

If improvement of the surface is required, it shall be carried out by planing and/or by the addition of a regulating course.

NOTE 1 All weak areas to be surfaced should be strengthened, major inequalities of profile remedied and depressions filled and thoroughly compacted prior to the laying of the macadam resurfacing.

NOTE 2 Every effort should be made to prevent water standing at the level of the bottom of the new material.

5.3.1.2 If the existing surface exhibits an excess of bitumen, this excess shall be removed.

5.3.2 Overlaying existing concrete

Where coated macadam is to be laid on existing concrete with defective joints, in addition to the general requirements given in **5.3.1** the joints shall be made good by cleaning out and refilling with a joint-filling material. This material shall be compacted flush with the surface.

NOTE 1 The material used should not be adversely affected by or itself adversely affect the surfacing.

NOTE 2 In some cases, special treatment of the joints and cracks may be necessary. It is particularly important to ensure that there is no relative movement between adjacent slabs.

NOTE 3 The thicker the layer of coated macadam used, the longer the delay in the appearance of reflective cracking.