

Important note to specifiers and purchasers of asphalt

Asphalt Specifications to change to accommodate new European Bitumen Specification

Bitumen Specifications

- A new European bitumen specification, **BS EN 12591**, was published during 2000.
- In the UK, this will replace the existing penetration grade bitumen specifications now included in BS 3690:Part 1 on **1st January 2002**.
- The grades in BS EN 12591 are different from those in BS 3690. The 200pen, 50pen and 35pen grades have very similar equivalents (160/220 pen, 40/60 pen and 30/45 pen), but **there is no direct equivalent for 100pen**.
- The closest grades to 100pen are 100/150 pen, which is slightly softer and 70/100 pen, which is slightly harder. **100/150 pen has been designated as the 'Preferred' grade** in the UK National Annex to EN 12591.
- There is also no direct equivalent for 70 pen, the closest grades being 50/70 pen or 70/100pen.

(Details of the old and new grades can be found in Table 1 overleaf)

Asphalt Specifications

- The British Standard specifications for macadam, BS 4987, and for hot rolled asphalt, BS 594, require amendment to accommodate these grade changes. **It will be necessary to use these revised specifications for all asphalt materials supplied after 31st December 2001.**
- The new edition of BS 4987 was published in May. In all cases, **100pen is replaced by the softer 100/150 pen grade**. This is intended to improve the workability and durability of macadam wearing courses, whilst recognising that most roadbases and basecourses for use on heavily trafficked roads now use 50pen (40/60 pen) grade or harder. Where dense macadam roadbases and basecourses are to be used on lightly trafficked roads the effect of the use of 100/150 pen in place of 100 pen is likely to be minimal.
- An amendment to BS 594 is in preparation and will be published shortly. The European 30/45 pen and 40/60 pen grades will be substituted for 35pen and 50pen respectively. Where 70pen and 100pen have previously been used, these will be replaced by the 70/100 pen and the 100/150 pen grade, as appropriate.

Terminology

- This enforced revision of BS 4987 and BS 594 has been taken as an opportunity to introduce into the UK some of the changes in terminology which will be included in the European Asphalt Standards, to be published in a few years time. These changes are as follows:
- **Surface Course** The term 'Wearing Course' will disappear. The running surface will in future be called '**Surface Course**'.
- **Binder Course** The term 'Basecourse' will disappear. The layer immediately below the surface course will in future be known as the '**Binder Course**'.
- **Base** The term 'Roadbase' will eventually disappear. This layer will be referred to in the European asphalt mix specifications, when published, simply as '**Base**'. **However, there is clearly scope for confusion between 'Base' and the old term 'Basecourse' and great care will need to be taken to ensure that the correct terminology is used and that producers, contractors and specifiers understand each other.** As an interim measure, therefore, the revised edition of BS 4987 refers to '**Base (roadbase)**' and the amendment to BS 594 will do the same.

Table 1 Comparison of BS 3690 and EN 12591 Bitumen Grades

BS 3690 (Until 31/12/2001)		EN 12591 (From 1/1/2002)		
Grade	Pen Range	Grade #	Pen Range	Penetration Reference used in BS 4987: 2001 mix descriptions
15 pen*	10 - 20	No equivalent EN 12591 grade at present (specification proposed)	-	-
25 pen*	20 - 30	20/30	20 - 30	
35 pen	28 - 42	30/45	30 - 45	35
		35/50	35 - 50	
50 pen	40 - 60	40/60*	40 - 60	50
		50/70	50 - 70	
70 pen	60 - 80			
		70/100	70 - 100	
100 pen	80 - 120			
		100/150*	100 - 150	125
200 pen	170 - 230	160/220*	160 - 220	190
300 pen	255 - 345	250/330	250 - 330	290
450 pen*	385 - 515	No equivalent EN12591 grade	-	

Grade designations to be used for bitumen supply and ordering from 1 January 2002.

* These grades are not currently specified in BS 594, BS 4987 or other UK specifications for asphalts and coated macadam for road purposes.

• These grades have been designated "Preferred" grades in the UK National Annex to EN12591.

Further references:

BS EN 12591:2000 'Bitumen and bituminous binders - Specifications for paving grade bitumens';

BS 4987: 2001 'Coated macadam (asphalt concrete) for roads and other paved areas -

Part 1: Specification for constituent materials and for mixtures.

Part 2: Specification for transport, laying and compaction.'

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BSI
389 Chiswick High Road
London W4 4AL
Tel: 020 8996 9001
Fax: 020 8996 7001



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156 Buckingham Palace Road London SW1W 9TR
Tel 020 7730 8194 Fax 020 7730 4355
asphalt@qpa.org www.qpa.org