

NEW BRITISH STANDARD

BS EN 14023: 2010

(including National Annex – Guidance for use in the UK)

Specification Framework for Polymer Modified Bitumens

INTRODUCTION

BS EN 14023 was originally published in 2005 as part of a programme of harmonisation of European Standards for bituminous binders. The standard has been reviewed to further harmonise the original standard and update Annex ZA, which allows CE marking to be attached.

The new standard BS EN 14023:2010 was published in May and will be implemented immediately. The associated binder test methods have been published by the UK Energy Institute.

WHAT WILL CHANGE

- The main changes in BS EN 14023:2010 are further harmonisation of the original Standard, subdivision of the properties into three groups in the tables, and revision of the Evaluation of Conformity and CE marking to bring it into line with the other bitumen standards.
- The Standard is a “Framework” specification based on empirical tests which have been used previously in (some) European countries. It is not a Performance-Related binder specification.
- Properties are subdivided into three groups as follows:
 1. The properties in Table 1 have to be specified for all polymer modified bitumens and are associated with regulatory or HSE requirements.
 2. The properties in Table 2 are required to meet specific regional conditions and are associated with regulatory or other regional requirements.
 3. The properties in Table 3 are additional properties, which are non-mandated, but have been found useful in some countries to describe polymer modified bitumens.
- In theory, any sensible combination of classes in Tables 1, 2 and 3 may be selected, however without guidance, the use of BS EN 14023:2010 may cause confusion. It is important to note that the classes are not necessarily relevant to all types of PMBs, or to performance in some applications, and would not necessarily provide enhanced performance in specific applications.
- This potential for confusion and possible poor selection of properties/classes has been recognised by UK industry and therefore the Standard contains a National Annex to address these issues.
- For each PMB, the supplier must give the class for each of the properties shown in Tables 1, 2 and 3. NR (No Requirement) or TBR (To Be Reported) may be chosen as appropriate from Tables 2 and 3. Only the information from Tables 1 and 2 is required for CE marking purposes.
- Existing UK proprietary PMBs will continue to be supplied under their current brand names and, in addition, they will be identified under the grading and nomenclature system (Penetration range and minimum Softening Point) described in the Standard.
- Evaluation of Conformity:
 - The Standard contains requirements for ‘Evaluation of Conformity’. These detail the steps which PMB manufacturers must take in order to demonstrate conformity with the specification.
 - PMB manufacturers will operate ISO 9001 systems for quality management. Initial Type Testing and Factory Production Control will be included, and the scope of UK National Highways Sector Scheme 15 includes testing frequencies and reporting of data for PMBs.
 - All the characteristics in the specification require initial type testing except those where the supplier has chosen NR.
- Declaration of Conformity:
 - Annex ZA of the Standard states that manufacturers are entitled to affix CE marking. This is not a legal requirement at the present time in the UK, and manufacturers may therefore choose not to apply CE marking.
 - Examples of CE marking suitable for use in the UK are given in figures ZA.1, ZA.2 and ZA.3 of the Standard.

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HOW WILL IT WORK

- The Standard is principally applicable to pre-blended PMBs used in hot mix asphalt and to the base PMBs used to produce bitumen emulsions, or cut-back/fluxed bitumens for use in cold/warm mix asphalt, surface dressing binders and bond coats.
- In the UK, PMBs have usually been proprietary materials developed for specific end uses, which have been selected by the users to achieve end product performance. They have previously been supplied to BS EN 14023:2005, which is withdrawn.
It is recommended that the classification of PMBs in accordance with the new Standard and the characteristics required to meet the performance requirements of the resulting asphalts, surface dressing binders or bond coats continue to be agreed between the binder supplier and the asphalt/emulsion/cut-back/bond coat manufacturer.
- A suggested specification clause that a Client, e.g. a highway authority, could use in a contract is as follows: -

“Polymer modified binders shall conform to the requirements of BS EN 14023:2010 and National Annex NA (informative)”.