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Unclear scope of the harmonised product standard EN 14023:2010 'Bitumen and bituminous binders. Framework for polymer modified binder'

Finnish Transport Agency (former Finnish Road Administration) has informed Head of the Finnish SCC Delegation on deficiencies in the harmonised product standard EN 14023 *'Bitumen and bituminous binders. Framework for polymer modified binder'.*

Polymer modified bitumen produced in the one and the same production line can be used in the following applications in Finland:
a) as a joint filler for hot applied sealants
b) as a binder of asphalt concrete
c) as an adhesive bitumen for bridge deck waterproofing system applied by pour-and-roll technique
d) as a sealant for gluing of an asphalt paving to the edge beams on bridge decks

Conclusion 1:
Application a) is covered by the harmonised product standard EN 14188-1 *'Joint fillers and sealants – Part 1: Specifications for hot applied sealants'.*

Conclusion 2:
Application b) is covered by EN 14023.

Conclusion 3:
It is not clear if applications c) and d) are covered by EN 14023 or not.

According to the scope of EN 14023 the standard covers polymer modified bitumens which are suitable *'...for use in construction and maintenance of roads, airfields and other paved areas'*. Scope of EN 14023 does not state clearly if polymer modified bitumens to be used on bridge decks are covered even the term other paved areas may be interpreted to cover also bridge decks.

Finnish manufacturers have already CE-marked their polymer modified bitumen intended to be used in application b), c) and d) based on EN 14023 since the hEN covers the essential characteristics. And this was recommended by the Finnish standardization mirror committee of CEN TC 336.

Unfortunately from the Finnish Transport Agency's point of view classification for the essential characteristic softening point is not adequate for the application c) in Finland. Highest class in EN 14023 for the essential characteristic softening point is class 2 where the requirement is ≥ 80 °C. However, the Finnish requirement for application c) is ≥ 95 °C based on the national KB 100 classification

The Finnish requirement for softening point (≥ 95 °C) has been given in the Finnish Road Administration's Bridge Construction General Quality Requirements (SYL Parts 1...7) notified to the Commission (notification number is 2006/27/FIN).

Clause 18.2.2.3 [1)] 'Fixing bitumen' in Bridge Construction General Quality Requirements – Deck Surface Structures (SYL 6) English version states as follows in item (2):

.2 *Adhesive bitumens and welding bitumens used for membranes that are fixed by heating (welding) must meet the requirements of the SILKO acceptance requirements for KB 100 rubberised bitumen [2] in Appendix 2, Table 2.*

Clause 18.2.3.3 [1] 'Membrane insulation' in Bridge Construction General Quality Requirements – Deck Surface Structures (SYL 6) English version states as follows in item (21):

.21 *A double layer rubberized bitumen [2] coating (KB 100), measuring 2 x 1.5 kg/m², is always be applied to the inside surface of an edge beam and from there onto the insulation over width of 250 mm regardless of the insulation fixing method used. The rubberized bitumen [2] must meet the SILKO acceptance requirements in Appendix 2, Table 2.*

Appendix 2, Table 2 states as follows:

Table 2. SILKO acceptance requirements for rubberised bitumen [2]

Rubberised bitumen	*Unit*	*Requirement*		*Method*
		KB85	*KB100*	
Mollescence point [3]	*°C*	*≥ 75.0*	***95.0-120.0***	*SFS-EN 1427*
Penetration, at 25 °C	*1/10 mm*	*50-100*	*20-70*	*SFS-EN 1426*
Viscosity at 180 °C	*mm²/s*	*≤ 1500*	*≤ 10, 000*	*SFS-EN 12595*
Flash point	*°C*	*≥ 235*	*≥ 210*	*SFS-EN 22592*
Recovery, at 10 °C	*%*	*≥ 75*	*≥ 75*	*SFS-EN 13398*
Cold bendability Ø 30 mm, thickness 3 mm	*°C*	*≤ -15*	*≤ -15*	*SFS-EN 1109*

[1] In the index of notified SYL 6 (English version) the clause number is 6.2.2.3 as in the original Finnish text.
[2] Rubberised bitumen actually means polymer modified bitumen.
[3] Mollescence point actually means softening point.

Thus it is clear that polymer modified bitumen intended to be used as an adhesive bitumen for bridge deck waterproofing system applied by pour-and-roll technique (application c) has to fulfill Finnish national class KB100 requirements one of them being ≥ 95 °C for the essential characteristic softening point.

We ask the Commission to request clarification from CEN TC 336 on the scope of EN 14023. Are polymer modified bitumen as an adhesive bitumen for bridge deck waterproofing system applied by pour-and-roll technique (application c) and as a sealant for gluing of an asphalt paving to the edge beams on bridge decks (application d) covered by EN 14023 or not?

If application c) is covered by the scope of EN 14023 then **it is necessary to add a new class having requirement ≥ 95 °C for the essential characteristic softening point.**

If application c) is not covered by the scope of EN 14023 then **national authorities have to be informed that they are still allowed to use national approvals for polymer modified bitumen intended to be used for this application.** It should also be noted that this interpretation would mean additional costs to the manufacturers in Europe having already CE-marking in their polymer modified bitumens for all intended uses. Polymer modified bitumen produced in the same production line would have to include both CE-marking and national approval in some Member States depending on the intended use.

Finnish Transport Agency is revising its SILKO requirements and that is why it is now important to know the correct interpretation on this matter.

With best regards,

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Head of the Finnish Delegation to SCC