

# **NATIONAL ROADS AUTHORITY MCDRW2 NOTES FOR GUIDANCE**

## **100 SERIES – PRELIMINARIES**

**(Part revision to facilitate publication of new 900 Series)**

### **Summary**

This document includes a partial revision to the 100 Series of the Notes for Guidance (MCDRW2) for Road Pavements – Preliminaries. This revised element of the Notes for Guidance is prepared to facilitate the publication of the new 900 Series of the Specification (MCDRW1) for Road Pavements – Bituminous Bound Materials. It includes an updated Series 900 section of Table NG1/1 for bituminous materials, and maintains consistency in approach to the needs for testing and data in addition to factory production control outputs.

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 900	Aggregates for bituminous materials				
901	Resistance to fragmentation (hardness)	Resistance to fragmentation (IL)	Monthly*	Required	IS EN 13108-21 Factory Production Control procedures apply. The test certificate is the CE Mark for the mixture
925		Soundness (IL)	1 per source*		
937		Water absorption (IL)	[As required]		
938	Resistance to freezing and thawing (durability)	Sieve test (mass passing 0.063mm sieve) (IL)	Monthly*	Required	[Where required – See NG:901.10]
942		Flakiness index (IL)	Monthly*		
943	Shape	Bulk density (IL)	1 per 500 tonnes*	Required	Washing and sieving method to be used
		Soundness (IL)	Once every 4 months		
	Blastfurnace slag	Dicalcium silicate disintegration (IL)	1 per 500 tonnes*	Required	[IS EN 1097 – 3]
		Iron disintegration (IL)	1 per 500 tonnes*		
		Bulk density	1 per 500 tonnes*		
	Steel slag	Volume stability (IL)	1 per 500 tonnes*	Required	[These are for air-cooled blastfurnace slag]
		Resistance to surface polishing (PSV) (IL)	1 per source*		
	Course aggregate for surface courses	Resistance to surface abrasion (AAV) (IL)	1 per source*	Required	

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
901 925 937 938 942 943 (continued)	Binders for bituminous materials	Penetration (IL)	1 per 750 tonnes*	Required	IS EN 13108-21 Factory Production Control procedures apply. The test certificate is the CE Mark for the mixture. Except where specifically called for in the Specification for Road Works, the inclusion of polymer modified bitumen is subject to NRA approval.
		Softening point (IL)	1 per 750 tonnes*		
		[Other IS EN tests]	[As required]		
902	Reclaimed bituminous materials	Recovered penetration (IL)	1 per 1000 tonnes or one per day whichever is greater**	Required	[Recovered penetration of the final plant mixed material]
903 906 907 909 to 912 916 925 929 930 937 938 942 943	Bituminous mixtures	Grading (IL)	BS EN 13108-21 Factory Production Control (FCP) procedures apply. In addition a minimum of 1 per 375 tonnes or minimum 2 per five day period or part thereof whichever is greater of the FPC samples shall be retrieved from the delivery vehicle on arrival at site.	Required	The test certificate is the CE Mark for the mixture. The site samples shall be split with one sample going to the FPC process and the second sample stored for possible audit test purposes.
		Binder content (IL)			
911	Hot Rolled Asphalt surface course (Design Mixtures)	Design Binder content	1 per source*	Required	The test certificate is the CE Mark for the mixture.

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
915	Coated chippings for application to Hot Rolled Asphalt Surfacing	Hot sand test (IL)	1 per source*		
		Rate of spread (IL)	[As required]		
		Determination of resistance to fragmentation – Los Angeles coefficient (IL)	Monthly*		
		Determination of particle size distribution (IL)	1 per 75 tonnes*		
		Binder content (IL)	1 per 75 tonnes*		
		Determination of particle shape of aggregates – Flakiness Index (IL)	Monthly*		
		Determination of the polished stone value (PSV) (IL)	2 per year per source*		
		Determination of resistance to surface abrasion – Aggregate Abrasion Value (AAV) (IL)	2 per year per source*		

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
918	Slurry Sealing	Tests specified in Clause 918	As required in Clause 918		†
			Site control tests		
919	Surface Dressing	<i>[Other IS EN / BS tests]</i>	<i>[As required]</i>		As required in IAT guidelines
			Penetration (IL)		
			Softening point (IL)		
			<i>[Other IS EN / BS tests]</i>		
			Tests specified in IAT Publication “Guidelines for Surface Dressing in Ireland”		
920	Bond coats, tack coats and other bituminous sprays	Test as specified for surface dressing binder	As required for surface dressing binder		As per IAT guidelines
			Determination of particle size distribution (IL)		
920	Blinding material	Rate of application	1 per contract*		
			Daily*		
			Daily*		

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
921	Surface macrotexture	Volumetric Patch (IL)	[As required]	Required	
924	High friction surfaces				
	Aggregate	Resistance to polishing (Manufacturer's test) (PSV) (IL)	1 per source*	Required	
		Determination of particle size distribution (IL)	1 per source*		
	Binder	Rate of spread	[As required]		
		Tensile strength	2 per 1000m <sup>2</sup> /shift		††
	Cured Binder	Elongation			
929	Base and binder Course Asphalt Concrete (Design Mixtures)	Permanent Works – In situ air void content (IL)	[As required]	Required	
		Permanent Works – Refusal air void content (IL)			
		Permanent Works – Deformation resistance			
		Deformation resistance (design)	[As required]	Required	The test certificate is the CE Mark for the mixture
		Stiffness (design)			

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
930	EME 2	Permanent Works – In situ air void content (IL)	<i>[As required]</i>	Required	The test certificate is the CE Mark for the mixture
		Richness modulus (design)			
		Duriez (design)			
		Deformation Resistance (design)			
		Stiffness (design)			
937	Stone mastic asphalt (SMA) regulating course	Permanent Works – In situ air void content (IL)	<i>[As required]</i>	Required	
		Permanent Works – Deformation resistance			
		Binder drainage (design)			
		Deformation resistance (design)			
938	Porous asphalt	Relative hydraulic conductivity (IL)	As required by Clause 938	Required	† In addition European in-situ drainability testing required

Table NG 1/1: Typical Testing Details – Series 900 Extract

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate**	Comments
Series 900 (Continued)					
943	Hot Rolled Asphalt surface course and binder course (performance related design mixtures)	Permanent Works – In situ air void content (IL)	<i>[As required]</i>	Required	
		Permanent Works – Deformation resistance			
		Deformation resistance (design)			
906 929 930 937 943	Bituminous mixtures	Compaction control (IL)	As required by BS 5949 <sup>†</sup> and the individual clauses of SRW	Required	†

**Key**

- † indicates a requirement in SRW for the test to be carried out by the Contractor; such tests should therefore be scheduled in Appendix 1/5.
- †† indicates a statement in SRW that the test may/will be carried out under the direction of the Employer; samples for such tests should therefore be required in Appendix 1/6.
- \* indicates that the frequency of testing is given for general guidance and is only indicative of the frequency that may be appropriate (ie. no frequency is given in the SHW or reference documents). Where materials are known to be marginal or if initial test results show them to be such, the frequency of testing should be increased. Conversely where material properties are consistently in excess of specified minimum requirements or well below specified maximum limits, then the frequency of testing should be reduced.
- \*\* indicates that where requested by the Employer, supporting data behind each certificate shall be supplied by the Contractor within 48 hours of the request being made.
- (IL) indicates that a INAB or equivalent accredited Independent Laboratory sampling and test report or certificate is required.
- [Notes to compiler:
  1. The above symbols apart from (IL) are for guidance when preparing Appendices 1/5 and 1/6 and should not be reproduced in those Appendices.
  2. Other guidance is printed in italics and should likewise not be reproduced in Appendices 1/5 and 1/6.
 Appropriate Contract-specific requirements should be scheduled.]