

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION**

SUPPLEMENTAL SPECIFICATION 908

PERFORMANCE GRADE (PG) BINDER REQUIREMENTS

January 6, 1999

- 908.01 Performance Grade Binder Specifications**
- 908.02 Viscosity Grade Cross Reference**
- 908.03 Contractor Storage Requirements**
- 908.04 Contractor Sampling Requirements**

908.01 Performance Grade Binder Specifications. The requirements of 702.01 shall be replaced with AASHTO Provisional Standard MP1-93, 1997 AASHTO Provisional Standard version for Performance Graded (PG) binders as modified below:

PG 64-22 shall meet: Penetration, 77 F (25 C), 3.53 oz (100g), 5s - 55 - 75
 PG 58-28 shall meet: Viscosity, poise, 140 F (60 C)- 800 min

The Materials and Manufacture section 5 shall be modified for all performance grades (PG) as follows:

- 5.1 The performance grade binder shall be an asphalt cement from the refining of crude petroleum, or combination of asphalt cements from the refining of crude petroleum, or asphalt cements and suitable liquid from the refining of crude petroleum, and possible organic modifiers for performance enhancement. Material from the crude refining stream will be considered neat. Use of any hydrocarbon material not taken directly from the crude refining stream shall be considered a modifier as in 5.2. Modifier or liquid direct from the refining stream may be used for adjustments but shall not be used for the purpose of substitution of crude refined asphalt cement in a performance grade asphalt binder.
- 5.2 Modifiers may be any organic material of suitable manufacture that is proven compatible with asphalt cement (does not separate appreciably in routine storage), and that is dissolved, dispersed or reacted in asphalt cement to improve its performance. The use of modifiers shall be limited to 6.0 percent by performance grade binder weight. Performance enhancement is defined as a decrease in the temperature susceptibility of the asphalt cement while maintaining desirable properties in a neat asphalt cement such as coatability, adhesiveness and cohesiveness. The use of any previously used whole material (liquid or solid) as a modifier is expressly forbidden. Reprocessed previously used materials may be applicable but materials and sources must be approved by the Department. Since no standard test procedures exist for reprocessed materials (and original tests were not developed with the use of such materials in mind), any test methods may be chosen by the Department for review. Department approval does not relieve the performance grade binder supplier from full responsibility for content and use of any previously used material nor guarantee suitable performance enhancement as defined above. The detected presence in a performance grade binder sample of any unapproved previously used material will mean immediate removal from certification. All constituent (modifier, etc.) MSDS sheets must be with the performance grade binder MSDS sheet supplied to a hot mix facility and accompany the supplier quality control plan on file in the Office of Materials Management.
- 5.3 The performance grade asphalt binder shall be homogeneous, free from water and deleterious materials, and shall not foam when heated to 350 F (175 C). The asphalt binder (before

modification or after modification if liquid modifier used) shall be proven fully compatible with a negative result by means of the Spot Test per AASHTO T 102 using standard naphtha solvent. If standard naphtha shows a positive result, a retest using 35 percent Xylene/ 65 percent Heptane (volume) may be used.

- 5.4 The performance grade asphalt binder shall be at least 99.0 percent soluble as determined by ASTM D 5546 or D 2042. Any insoluble component shall be substantially free of fibers and have discrete particles less than 75 m.

908.02 Viscosity Grade Cross Reference. All asphalt concrete and bituminous aggregate base specifying either AC-20 or AC-10 asphalt cement shall switch to a performance graded (PG) binder in accordance with the following chart:

Mix	Specified Binder	Use PG Binder (2)
441 designed for heavy traffic (1)	AC-20 AC-10	PG 64-22 PG 64-28 (3)
441 designed for medium or light traffic (1)	AC-20 AC-10	PG 64-22 PG 58-28
Any other specification (1)	AC-20 AC-10	PG 64-22 PG 58-28

- (1) Mixes containing reclaimed pavement, where a grade change is necessary in accordance with 441.03, shall use a performance grade binder specified by Department policy covering testing and selection of binders for recycled mixes.
- (2) The performance grade binder shall meet the requirements of the rest of this specification.
- (3) Neat asphalt, unmodified

908.03 Contractor Storage Requirements. Storage of a performance grade binder shall be in accordance with 750.01, with the following additions:

- 1. If a Contractor is providing a binder other than a performance grade binder to customers other than the Department (excepting winter carryover work), a separate storage tank shall be used.
- 2. When the Contractor switches between different performance grade binders because of alternating mix types, a separate storage tank shall be used.
- 3. When the Contractor switches from any asphalt cement or other performance grade binder to a different performance grade binder using the same storage tank, the storage tank shall be at least 90 percent empty by tank height.

The Monitoring Team shall be notified before the delivery of the first load of each type of performance grade binder, with sufficient lead time to allow for verification of the condition of the storage tank. The Monitoring Team may sample the first storage tank load or give the Contractor permission to proceed with no tank verification, at their discretion.

908.04 Contractor Sampling Requirements. The Contractor shall take two 1 quart (1 liter) samples from the first transport truck load of performance grade binder before incorporation into the storage tank. The Contractor will label and date the samples and retain them in the plant laboratory for future reference by the Department, if necessary.