904-R-560 SMA COARSE AGGREGATE REQUIREMENTS

(Revised 05-19-11)

The Standard Specifications are revised as follows:

SECTION 904, BEGIN LINE 210, DELETE AND INSERT AS FOLLOWS:

a) Classification of Aggregates

Characteristic Classes	AP	AS	A	B	C	D	E	F
Quality Requirements:								
Freeze and Thaw Beam Expansion, % Max. (Note 1)	.060							
Los Angeles Abrasion, % Max. (Note 2)	40.0	30.0	40.0	40.0	45.0	45.0	50.0	
Freeze and Thaw, AASHTO T 103, Procedure A, % Max. (Note 3)	12.0	12.0	12.0	12.0	16.0	16.0	20.0	25.0
Sodium Sulfate Soundness, % Max. (Note 3)	12.0	12.0	12.0	12.0	16.0	16.0	20.0	25.0
Brine Freeze and Thaw Soundness, % Max. (Note 3)	30	30	30	30	40	40	50	60
Absorption, % Max. (Note 4)	5.0	5.0	5.0	5.0	5.0			
Additional Requirements:								
Deleterious, % Max.								
Clay Lumps and Friable Particles	1.0	1.0	1.0	1.0	2.0	4.0		
Non-Durable (Note 5)	4.0	2.0	4.0	4.0	6.0	8.0		
Coke					(See Note 6)			
Iron					(See Note 6)			
Chert (Note 7)	3.0	3.0	3.0	5.0	8.0	10.0		
Weight per Cubic Foot for Slag, lbs, Min.	75.0		75.0	75.0	70.0	70.0	70.0	
(Mass per Cubic Meter for Slag, (kg))	(1,200)		(1,200)	(1,200)	(1,120)	(1,120)	(1,120)	
Crushed Particles, % Min. (Note 8)								
Asphalt Seal Coats			70.0	70.0				
Compacted Aggregates			20.0	20.0	20.0	20.0		
Additional SMA *Mixture* Requirements:								
Micro-Deval Abrasion, %, Max. ~~(Note 9)~~		~~18.0~~*(Note 9)*						
Aggregate Degradation, %, Max. ~~(Note 10)~~		~~3.0~~*(Note 10)*						

Notes:
1. Freeze and thaw beam expansion shall be tested and re-tested in accordance with ITM 210.
2. Los Angeles abrasion requirements shall not apply to BF.
3. Aggregates may, at the option of the Engineer, be accepted by the Sodium Sulfate Soundness or Brine Freeze and Thaw Soundness requirements.
4. Absorption requirements apply only to aggregates used in PCC and HMA mixtures except they shall not apply to BF. When crushed stone coarse aggregates from Category I sources consist of production from ledges whose absorptions differ by more than 2 percentage points, the absorption test will be performed every 3 months on each size of material proposed for use in PCC or HMA mixtures. Materials having absorption values between 5.0 and 6.0 that pass AP testing may be used in PCC. If variations in absorption preclude satisfactory production of PCC or HMA mixtures, independent stockpiles of materials will be sampled, tested, and approved prior to use.
5. Non-durable particles include soft particles as determined by ITM 206 and other particles which are structurally weak, such as soft sandstone, shale, limonite concretions, coal, weathered schist, cemented gravel, ocher, shells, wood, or other objectionable material. Determination of non-durable particles shall be made from the total weight (mass) of material retained on the 3/8 in. (9.5 mm) sieve. Scratch Hardness Test shall not apply to crushed stone coarse aggregate.
6. ACBF and SF coarse aggregate shall be free of objectionable amounts of coke, iron, and lime agglomerates.
7. The bulk specific gravity of chert shall be based on the saturated surface dry condition. The amount of chert less than 2.45 bulk specific gravity shall be determined on the total weight (mass) of material retained on the 3/8 in. (9.5 mm) sieve for sizes 2 through 8, 43, 53, and 73 and on the total weight (mass) of material retained on the No. 4 (4.75 mm) sieve for sizes 9, 11, 12, and 91.
8. Crushed particle requirements apply to gravel coarse aggregates used in compacted aggregates, and seal coats except seal coats used on shoulders. Determination of crushed particles shall be made from the weight (mass) of material retained on the No. 4 (4.75 mm) sieve in accordance with ASTM D 5821.
9. Micro-Deval ~~a~~*A*brasion ~~requirements shall apply to~~*testing will be required for* each coarse aggregate. A *coarse aggregate or a* blend of coarse aggregates shall have ~~the~~*a maximum Micro-Deval* ~~a~~*A*brasion loss value *of 18.0% as* determined in accordance with ITM 220.
10. *A coarse aggregate or a blend of coarse aggregates shall have a maximum* Aggregate ~~d~~*D*egradation ~~shall be~~ *loss value of 3.0% as* determined in accordance with ITM 220.