

904-R-560 AGGREGATES

(Adopted 11-20-08)

The Standard Specifications are revised as follows:

SECTION 904, BEGIN LINE 65, DELETE AND INSERT AS FOLLOWS:

Steel furnace (SF) slag ~~shall only~~ may be used in aggregate shoulders, HMA surface or SMA surface mixtures, dumped riprap, and snow and ice abrasives. *SF slag coarse aggregate may be used in HMA base and HMA intermediate mixtures if the deleterious content is less than 4.0 % when tested in accordance with ITM 219. RAP with steel slag may be used in accordance with 401.06, 402.08 and 410.06.*

SECTION 904, BEGIN LINE 205, 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 43)	30	30	30	30	40	40	50	60
Absorption, % Max. (Note 54)	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 65)	4.0	4.0	4.0	4.0	6.0	8.0		
Coke					(See	Note 76)		
Iron					(See	Note 76)		
Chert (Note 87)	3.0	3.0	3.0	5.0	8.0	10.0		
Weight per Cubic Foot for Slag, (lbs), Min. (Mass per Cubic Meter for Slag, (kg))	75.0 (1200)		75.0 (1200)	75.0 (1200)	70.0 (1120)	70.0 (1120)	70.0 (1120)	
Crushed Particles, % Min. (Note 98)								
Asphalt Seal Coats			70.0	70.0				
Compacted Aggregates			20.0	20.0	20.0	20.0		

- Notes:
- Freeze and thaw beam expansion shall be tested and re-tested in accordance with ITM 210.
 - Los Angeles abrasion requirements shall not apply to BF.
 - Aggregates may, at the option of the Engineer, ~~be subjected to 50 cycles of freezing and thawing in accordance with AASHTO T 103, Procedure A, and may be accepted, provided they do not have a loss greater than specified for by the~~ Sodium Sulfate Soundness or Brine Freeze and Thaw Soundness requirements.
 - ~~Brine freeze and thaw soundness requirements are subject to the conditions stated in Note 3.~~
 - 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 two percentage points, the absorption test will be performed every three 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.
 - 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.
 - ACBF and SF coarse aggregate shall be free of objectionable amounts of coke, iron, and lime agglomerates.
 - 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.

98. 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.
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