

203.01

SECTION 203—COARSE AGGREGATE

203.01—Description

These specifications cover material used as coarse aggregate in the production of hydraulic cement concrete, asphalt concrete, asphalt surface treatments, and in drainage.

203.02—Materials

Coarse aggregate shall consist of crushed stone, crushed slag, crushed or uncrushed gravel with clean, hard, tough, and durable pieces free from adherent coatings and deleterious amounts of friable, thin, elongated, or laminated pieces; soluble salts; or organic materials.

- (a) **Crushed hydraulic cement concrete** will be permitted for use as a coarse aggregate provided it conforms to the physical requirements specified herein and shows no adverse chemical reaction. Crushed hydraulic cement concrete will not be permitted in the following: (1) reinforced cement concrete, (2) in combination with other materials in contact with geotextile fabric when such fabric is used as a drainage item, and (3) in backfill or bedding for perforated pipe.
- (b) **Crushed gravel** shall consist of particles of which at least 80 percent by weight shall have at least one face fractured by artificial crushing. Tests to verify conformance shall be performed in accordance with VTM-15.
- (c) **Blast furnace slag** shall be relatively free from foreign minerals and glassy or spongy pieces. It shall weigh at least 70 pounds per cubic foot, dry rodded, for size No. 68 and smaller and at least 65 pounds per cubic foot, dry rodded, for larger sizes. Tests to verify conformance shall be performed in accordance with AASHTO T19. When used in asphalt surface treatments, blast furnace slag shall contain not more than 10 percent nonporous material and shall have an absorption of at least 3 percent. Tests to verify conformance will be performed in accordance with AASHTO T85.
- (d) **Crushed glass** shall consist of particles of curbside-collected or waste glass. It shall be free from sources of glass that include automotive glass, lead crystal, TV monitors, lighting fixtures and electronics applications. Non-glassy material associated with curbside collection (paper, capping materials, etc.), excluding fragments of broken ceramics and pottery, shall be limited to 5 percent by weight using a gravimetric determination, and including loss on ignition performed in accordance with ASTM D2974. One hundred percent (100%) of the crushed glass shall pass the 9.5 mm (3/8 inch) sieve with less than 5 percent passing the No. 200 sieve. Crushed glass shall not be used in hydraulic cement concrete, asphalt, base/subbase, or exposed shoulder applications.

203.03—Detail Requirements

- (a) **Grading:** Open-graded aggregates shall conform to the requirements of Table II-3. Tests to verify conformance shall be performed in accordance with AASHTO T27.
- (b) **Soundness:** Soundness shall conform to the requirements of Table II-4. Tests to verify conformance shall be performed in accordance with AASHTO T103 or T104. The requirement for soundness test for crushed glass is waived due to its preclusion from the applications shown in Table II-4.

TABLE II-3
Sizes of Open-Graded Coarse Aggregates

Va. Size No.	Amounts Finer Than Each Laboratory Sieve (Square Openings) (% by Weight)														
	4 in.	3½ in.	3 in.	2½ in.	2 in.	1½ in.	1 in.	¾ in.	½ in.	⅜ in.	No. 4	No. 8	No. 16	No. 50	No. 100
1	Min. 100	90-100		25-60		Max. 15		Max. 5							
2			Min. 100	90-100	35-70	Max. 15		Max. 5							
3				Min. 100	90-100	35-70	0-15		Max. 5						
357				Min. 100	95-100		35-70		10-30		Max. 5				
5				Min. 100	90-100		90-100	20-55	Max. 10	Max. 5					
56				Min. 100	90-100		90-100	40-85	10-40	Max. 15	Max. 5				
57				Min. 100	95-100		95-100	25-60			Max. 10	Max. 5			
67							Min. 100	90-100		20-55	Max. 10	Max. 5			
68							Min. 100	90-100		30-65	5-25	Max. 10	Max. 5		
7								Min. 100	90-100	40-70	Max. 15	Max. 5			
78								Min. 100	90-100	40-75	5-25	Max. 10	Max. 5		
8									Min. 100	85-100	10-30	Max. 10	Max. 5		
8P									Min. 100	75-100	5-30	Max. 5			
9										Min. 100	85-100	10-40	Max. 10	Max. 5	
10										Min. 100	85-100				10-30