Performance Examination - Aggregate

Standard Method of Test for Lightweight Particles in Aggregate (AASHTO T 113-18) [ASTM C123 / C123M-14]

Candidate Name: _____ **NICET ID:** _____

Apparatus	Trial 1	Trial 2
Balance Readable to 0.1% of sample mass, or better		
Sieves 300-µm (No. 50) and 4.75-mm (No. 4)		
Hot Plate or Oven Capable of maintaining a temperature of 110 ± 5 °C (230 ± 10 °F)		
Specific Gravity Measurement A suitable device for measuring the specific gravity of heavy liquid within ± 0.01 (Hydrometer, Pycnometer)		
Skimmer Piece of 300-µm (No. 50) sieve cloth Suitable size and shape		
Containers (a) Suitable drying containers (b) Suitable containers for holding the heavy liquids		
Heavy Liquid One of the following: Solution of zinc chloride in water for materials with specific gravity less than 2.0 or (b) solution of zinc bromide in water for material with specific gravity less than 2.6 Mixture of heavy organic liquids proportioned to achieve the desired specific gravity (suggested: tetrabromoethane, dibromoethane, tetrachloroethane, or dichloromethane)		

Procedures	Trial 1	Trial 2
1. Test sample obtained by R 76		
2. 4.75 mm (No. 4) - 200 g; 19.0 mm (3/4 in.) - 3 kg; 37.5 mm (1 ½ in.) - 5 kg; 75 mm (3 in.) -10 kg		
3. Aggregate dried to constant mass at 110 ± 5 °C (230 ± 10 °F) and cooled to room temperature		
Fine Aggregate		
1. Sieved on a 300-µm (No. 50) sieve		
2. Sieving continued until less than 1% of the material on sieve passes in 1 minute of continuous hand sieving		
3. Mass of plus 300-µm material determined to nearest 0.1 g		
4. Aggregate brought to the saturated surface-dry condition by T 84 *or* amount of water that aggregate will absorb added, covered for 30 minutes, and tested		
5. The sample placed in a container holding heavy liquid		
6. Volume of heavy liquid at least three times the volume of aggregate tested		
7. Liquid poured into the second container through the skimmer		

Examiner Name: _____ **Examiner Signature**: _____ **Date:** _____

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Procedures (continued)	Trial 1	Trial 2
8. Only floating particles decanted		
9. Heavy liquid recovered and poured back into starting a container		
10. Aggregate agitated by stirring		
11. Steps 7 through 10 repeated until all floaters are removed		
12. Lightweight particles on skimmer washed free of heavy liquid using alcohol (for tetrabromoethane) or water (for zinc chloride or zinc bromide		
13. Lightweight particles allowed to air dry or dried to constant mass at no greater than 115 °C (240 °F)		
14. Mass of lightweight particles determined to nearest 0.1 g		
Coarse Aggregate		
1. Sieved on a 4.75-mm (No. 4) sieve		
2. The mass determine to the nearest 1 g		
3. Aggregate brought to the saturated surface-dry condition by T 85		
4. The sample placed in a container holding heavy liquid		
5. Volume of heavy liquid at least three times the volume of aggregate tested		
6. Skimmer used to remove the floating particles and particles saved		
7. Aggregate in container		
8. All floating particles removed by the above process		
9. Lightweight particles on skimmer washed free of heavy liquid using an appropriate solvent		
10. Lightweight particles allowed to air dry or dried to constant mass at no greater than 115 °C (240 °F)		
11. Mass of lightweight particles determined to the nearest 1 g		
Calculation	**Trial 1**	**Trial 2**
% (by mass) of lightweight particles = (dry mass of floating / sample mass) x 100		

First Attempt: Pass: _____ Fail: _____ **Second Attempt:** Pass: _____ Fail: _____

Exam Administration: Remote _____ In-Person _____

Comments:

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