Method of Test for Percentage of Particles of Less Than 1.95 Specific Gravity in Coarse Aggregate

1. **Scope:**

   This test is for determining the percentage of lightweight particles in coarse aggregate.

2. **Apparatus:**

   2.1 Scale or balance having the capacity to weigh any sample which may be tested utilizing this procedure and readable to the nearest 0.1 gram.

   2.2 A suitable container and basket that will permit submerging the specimen to a minimum of 2” below the surface of the solution. The basket shall have openings not larger than a #8 mesh.

   2.3 A #4 sieve conforming to ASTM E11.

   2.4 A strainer with openings not larger than a #8 mesh.

   2.5 A glass graduate of at least 250 mL capacity and a hydrometer for measuring the specific gravity of the liquid, readable to 0.01.

   2.6 Zinc chloride solution having a specific gravity of 1.95 ± 0.01.

   2.7 Drying oven capable of maintaining a temperature of 230° ± 9°F.

3. **Procedure:**

   3.1 Using a graduate and hydrometer check the specific gravity of the zinc chloride solution and record on the worksheet to the nearest 0.01.

   3.2 Obtain a 1500 to 2000 g sample of + #4 material collected from SD 202 and sampled in accordance with SD 201. Dry it to a constant weight as per SD 108 and weigh the material to the nearest 0.1 gram. The sample includes all rock above the #4 sieve.

   **NOTE:** Previously washed material may not be used for this test.

   3.3 Place the material in the basket and lower into the zinc chloride solution. Stir the aggregate with a large spoon. Skim off the floating particles using a strainer and save them. Repeat this process until no additional particles surface.

   **NOTE:** The solution in the tank should be approximately 3 times the volume of the aggregate.
3.4 Thoroughly wash the particles that have been skimmed off, dry to a constant weight in an oven at 230° ± 9°F and weigh the material to the nearest 0.1 gram.

4. **Report:**

4.1 Calculate the percentage of lightweight particles in the following manner.

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\% \text{ lightweight particles} = \frac{\text{Weight of lightweight particles} \times 100}{\text{Weight of + #4 material}}
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4.2 Report the percentage to the nearest 0.1%.

5. **References:**

ASTM E11
SD 108
SD 201
DOT-3
DOT-68
DOT-69