

Colorado Procedure – Laboratory 2213-10

Standard Method of Test for

Coating of Bitumen-Aggregate Mixtures

1. SCOPE

1.1 This procedure describes a method for determining the ability of an aggregate to be coated by an emulsion. The procedure will be performed using emulsion and aggregate sampled from a chip seal project.

2. APPARATUS

2.1 Containers for mixing, having rounded corners, such as seamless tin cans, able to easily hold 100g of aggregate.

2.2 Balance, with a minimum capacity of 200g, accurate to 0.1g.

2.3 Spatula, steel, with a stiff blade approximately 25 mm wide by 100 mm long.

2.4 Constant Temperature Oven, capable of maintaining $275^{\circ}\text{F} \pm 2^{\circ}$ ($135^{\circ}\text{C} \pm 1^{\circ}$).

3. TEST PROCEDURE

3.1 Obtain emulsion of the same type that will be used on the project.

3.2 Thoroughly heat the emulsion to 140°F (60°C) and stir so that it is uniform.

3.3 Weigh $100 \pm 1\text{g}$ of aggregate into a clean mixing container.

3.4 Add $8.0 \pm 0.2\text{g}$ of emulsion to the aggregate.

3.5 Mix the emulsion and aggregate vigorously at room temperature with the spatula until all aggregate is coated, but for no more than 5 minutes.

3.6 By observation, estimate the percentage of the total visible area of the coated aggregate as 95 percent or above, or below 95 percent. Any thin brownish, translucent areas are to be considered fully coated. If the coated area is 95 percent or greater, proceed to Section 4; otherwise, continue at Subsection 3.7.

3.7 Weigh $100 \pm 1\text{g}$ of aggregate into a clean mixing container.

3.8 Add 2g of water to the aggregate and mix thoroughly.

3.9 Add $8.0 \pm 0.2\text{g}$ of emulsion to the aggregate.

3.10 Mix the emulsion, water, and aggregate vigorously at room temperature with the spatula until all aggregate is coated, but for no more than 5 minutes.

3.11 By observation, estimate the percentage of the total visible area of the coated aggregate as 95 percent or above, or below 95 percent. Any thin brownish, translucent areas are to be considered fully coated. If the coated area is 95 percent or greater, proceed to Section 4. Otherwise, continue at Subsection 3.12.

3.12 Oven-cure the coated aggregate from Subsection 3.11 in the original container, uncovered, at 275°F (135°C) for 2 hours \pm 15 minutes. The ventilating port of the oven should be open during this curing step. After curing, immediately remix with the spatula while the mixture cools to room temperature, or until the bituminous material ceases to drain off the aggregate. Coating must be complete after remixing, that is to say, no bare spots are permissible.

4. REPORT

4.1 If the aggregate mixture from Subsection 3.6 was coated 95% or above, report the coating as "Good".

4.2 If the aggregate mixture from Subsection 3.11 was coated 95% or above, report the coating as "Fair".

4.3 If the aggregate mixture from Subsection 3.12 was fully coated, report the coating as "Poor". If it was not fully coated, report the coating as "Failing".

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