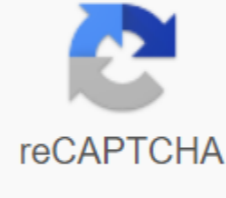




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## Aggregate test pdf

The unit plays an important role in the construction of sidewalks. The units have a significant impact on the ability to carry the load of sidewalks. Therefore, it is important that they are thoroughly tested before use for construction. Not only do the units have to be durable and durable, they also need to have the proper shape and size to make the pavement act monolithically. The units are tested for strength, strength, hardness, shape and absorption of water. In order to decide the suitability of the unit for use in pavement construction, the following tests are conducted: Crush test abrasion tests the impact test Soundness Test Specific Gravity Shape and Water Absorption Test Bitumen Adhesion Test 1. Crushing Test Fig-1 Crushing Test Setup One of the models in which asphalt material can fail by crushing under compression stress. The test is standardized IS: 2386 part-IV and is used to determine the crushing strength of the units. The cumulative crushing value provides a relative measure of resistance to crushing with a gradual crushing load. The test consists of putting the sample of the unit in a standard form for a compression test in standard load conditions (see pic-1). The dry units, passing through a sieve with a diameter of 12.5 mm and preserved 10 mm sieve, are filled with a cylindrical measurement with a diameter of 11.5 mm and a height of 18 cm in three layers. Each layer tamped 25 times with on a standard tamping rod. The test sample is weighed and placed in a test cylinder in three layers each layer, tamped again. The sample is subjected to a compressive load of 40 tons, gradually applied at a rate of 4 tons per minute. The shredded units are then sifted through a 2.36 mm sieve, and the weight of the passing material (W2) is expressed as a percentage of the weight of the total sample (W1), which is a cumulative crushing value. The cumulative crushing value (W1/W2) 100 Value less than 10 means an exceptionally strong unit, while above 35 is generally seen as weak units. READ ALSO: The assembly's crushing procedure read also: The procedure for checking the cost of units 2. Abrasion Test Fig-2 Los Angeles Abrasion Test Setup Abrasion Test is carried out to check the hardness of the properties of the units and to decide whether they are suitable for various construction work on the pavement. The Los Angeles abrasion test is preferred for property holding and has been standardized in India (IS: 2386 part-IV). The principle of the Los Angeles abrasion test is to find a percentage of wear due to the relative friction effect between the unit and the steel balls used as an abrasive charge. The Los Angeles machine consists of a circular drum of 700 mm and a length of 520 mm mounted on a horizontal axis, allowing it to rotate (see p. 2). Abrasive consisting of cast-iron spherical balls with a diameter of 48 mm g is placed in a cylinder along with units. The number of abrasive spheres varies depending on the classification of the sample. The number of units used depends on the gradation and usually varies from 5-10 kg. Then the cylinder is locked and rotated at a rate of 30-33 rpm for a total of 500-1000 revolutions depending on the gradation of the units. After these turns, the material is sifted through a sieve with a diameter of 1.7 mm and the traversed fraction is expressed as a percentage of the total weight of the sample. This value is called the Los Angeles abrasion value. A maximum value of 40 per cent is allowed for the WBM base course in Indian conditions. For bitumen concrete, a maximum value of 35 per cent is specified. READ ALSO: Los Angeles 3. Impact Test Fig-3 Impact Test Setup Cumulative impact test is conducted to assess resistance to the impact of units. The units, passing a sieve with a diameter of 12.5 mm and stored on a sieve of 10 mm, are filled with a cylindrical steel cup of the inner dia 10.2 mm and a depth of 5 cm, which is attached to the metal base of the shock test machine. The material is filled in 3 layers, where each layer is tamped for 25 stroke numbers (see pic-3). A metal hammer weighing between 13.5 and 14 kg is designed to fall with a free fall of 38.0 cm vertical guides, and the test sample is subjected to 15 strikes. The shredded unit can pass through an IS sieve with a diameter of 2.36 mm. And the impact value is measured as a percentage of the units passing the sieve (W2) to the total sample weight (W1). The total impact value (W1/W2) of 100 units to be used to carry the course should not exceed 30 percent. For bitumen macadam, the maximum allowable value is 35 per cent. For basic water-related macadam courses, the maximum allowable value determined by IRC is 40 per cent. Read also: The 4. Soundness Test Soundness test is designed to examine the resistance of the units to weathering, by conducting accelerated weathering test cycles. Porous aggregates that are frozen and thawed are likely to disintegrate prematurely. To establish the durability of such units, they are subjected to an accelerated durability test, as stated in IS: 2386 part-V. The units of this size are subjected to cycles of alternative wetting in a saturated solution, either sodium sulfate or magnesium sulfate for 16 - 18 hours, and then dried in the oven at a temperature of 105 to 1100C at a constant weight. After five cycles, weight loss aggregates are determined by sieving out all underweight particles and weighing. Weight loss should not exceed 12 percent when tested with sulfate sulfate and 18 percent with magnesium sulfate solution. READ ALSO: Procedure Reliability Aggregates 5. Shape Tests Fig-4 Flakiness Gauge Particle Shape The mass is determined by the percentage of flaky and elongated particles in it. The flakiness index is defined as a percentage by the weight of aggregate particles, the smallest measure of which is less than 0.6 times their average size. This test uses a flakiness sensor (see pic-4). The testing procedure has been standardized in India (IS: 2386 part-I). The assembly length index is defined as a percentage by the weight of particles, the largest measurement (length) of which is 1.8 times their average. This test is applicable to units over 6.3 mm in size. This test is also listed in (IS: 2386 Part-I). However, there are no recognized limitations for the extension index. Figure-5 Lengthening Gauge Also Read: Aggregated Flakiness Index Value Testing Procedure Also Read: Aggregated Extensions Index Value Procedure 6. Specific Gravity and Water Absorption Specific Gravity and Water Absorption Aggregates are important properties that are needed to develop concrete and bitumen mixtures. The specific gravity of a solid is the ratio of its mass to the mass of an equal volume of distilled water at a certain temperature. Because the units may contain water-permeable voids, two measurements of specific gravity of the units are used: apparent specific gravity and large specific gravity. A clear specific gravity, Gapp, is calculated on the basis of the pure volume of units, i.e. volume, excluding water sounds. Thus, Gapp (MD/VN)/W Where, MD is the dry mass of the unit, VN is a pure volume of units, excluding the amount of substance absorbed, W is the density of water. Mass-specific gravity, Gbulk, is calculated on the basis of the total volume of units, including water-permeable voids. Thus, Gbulk (MD/VB)/W Where, VB is the total volume of units, including the volume of water absorbed. Water absorption: The difference between obvious and voluminous specific gravity is nothing but permeable water emptiness of aggregates. We can measure the volume of such voids by weighing the aggregates dry and in a saturated surface dry state, with all the permeable voids filled with water. The difference between the two MW, MW is the weight of dry units minus the weight of units saturated surface dry condition. Thus, the absorption of water (MW/MD) 100 Specific gravity units, commonly used in road construction, ranges from 2.5 to 2.9. Water absorption values range from 0.1 to about 2.0 percent for units commonly used in road surfaces. READ ALSO: Specific gravity and water absorption test procedure 7. Bitumen Adhesion Test Bitumen is well adhered to by all types of road units provided that they are dry and dust-free. In the absence of a lack of there is almost no problem of adhesion of bitumen construction. The problem of adhesion occurs when the unit is wet and cold. This problem can be solved by removing moisture from the unit by drying and increasing the mixing temperature. In addition, the presence of water causes the cleaning of the binder from the covered units. This problem occurs when the bitumen mixture is permeable to water. Several laboratory tests are carried out to randomly determine the suction of a bitumen binder to the unit in the presence of water. The static immersion test is one indicated by IRC and is pretty simple. The principle of the test is to immerse the unit completely covered with a link in the water, stored at 400C for 24 hours. The IRC indicated the maximum clearance rate should not exceed 5%. IS list Related to aggregates for aggregates with IS codes Property aggregated type of test force crushing method Crushing Test IS: 2386 (part 4) Los Angeles Sage Abrasions Test IS: 2386 (Part 5) Strength Cumulative Impact Is Test : 2386 (Part 4) Strength Strength Test IS: 2386 (Part 5) Form Factors Form Test: 2386 (Part 1) Specific Gravity and Porosity Specific Gravity Test and Water Absorption Test IS : 2386 (Part 3) Adhesion to Bitumen Stripping Value of Cumulative IS: 6241-1971 Author Dr. Tom V Matthew (IIT Bombay) Bombay) aggregate testing manual pdf. aggregate test on site. aggregate test is code. aggregate test for concrete. aggregate test pdf. aggregate testing machine. aggregate test results. aggregate testing certification

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