SalierGeotechnical Limited

Hot Sand Test for the Condition of the Binder on Coated Chippings

Lab Test Reference 113
British Standard Reference
BS598 : Part 108 : 1990

Principal Apparatus as follows:-

i) Sand:- Clean dry silica sand with a rounded particle shape complying with Table 1 (300 to 150 micron)
ii) Grit:- Clean dry silica grit with a rounded particle shape complying with Table 1(1.18mm to 600 micron)
Iii) Laboratory Oven controlled to maintain a temperature of 125-130^{o}C. Invent No.xxx
iv) Electronic Thermometer and Short probe + 1^{o}C at 100-130^{o}C: Invent. No xxx.
v) 300mm dia. Sieves 10mm, 6.3mm and 3.35mm with red label
vi) Tin and Lid. 4.5 + 0.5 litre size Invent No. xxx
vii) Two metal trays 400 x 350 60mm (or smaller trays to make up the area required).

Electronic balance to weigh 12Kg to .1g: Invent. No xxx.

1. Preliminaries

1.1 The test shall be carried out in the Bituminous Laboratory on a clear area of workbench.

1.2 Ensure the sample number and test schedule correspond.

1.3 Check calibrated equipment is not past its expiry date.

1.4 Ensure all other equipment is serviceable and the sand has not been contaminated.

2. Standard Test Procedure (Sample Size 1000-1500g)

2.1 Fill the trays to a level depth of about 25mm with the 300/150 clean sand and place in an oven set at 125 to 130^{o}C. Leave for at lest 2 hours. Record Time in oven in Box 1 and Time out of oven in Box 2.

2.2 Sieve the chippings for 30 secs using the 10mm sieve for 20mm pre-coated chippings or 6.3mm sieve for 14mm pre-coated chippings and reject those chippings which pass through the sieves.

2.3 Inspect the chippings for moisture. If there is any doubt as to whether they are totally dry, place in an oven set at 60^{o} for 2 hours and again inspect for moisture. When they are seen to be dry weigh the chippings and record the mass as W1 g. Record Time in oven in Box 3 and Time out of oven in Box 4. Record weight in Box 5.

2.4 Check the temperature of the sand with the electronic thermometer at several points in the tray to ensure it has reached 125 to 130^{o}. Leave for a further period of time if it is not hot enough and recheck. Record temperature in Box 6.

2.5 When the sand is at the required temperature, remove the tray from the oven and spread chippings from the sample on to the hot sand until a uniform cover is achieved without contact between adjacent chippings. Complete this operation within about 2 to 3 minutes to prevent, excessive heat losses.

2.6 Cover the chippings by pouring hot sand from the second tray. Level the sand quickly and replace the tray with chippings into the oven for a minimum of 10 mins. Ensure the final sand temperature is not less than 100°C. Record temperature of sand in Box 7.

2.7 Remove the tray with chippings from the oven, pour the sand and the chippings onto the 3.35mm sieve and allow the chippings on the sieve to cool for about 10 minutes.

2.8 Place the cool chippings in the 4.5 litre tin half-filled with the -1.18/600 grit and attach the lid.

2.9 Shake the tin longitudinally a total of 100 cycles in about 50 secs with a displacement of about 100mm.

2.10 After completion tip the chippings and sand onto a 3.35mm sieve and discard the sand passing the sieve. Wash the chippings with a strong jet of cold water, allow them to drain and then tip them out onto some absorbent paper and allow to dry thoroughly by using the hot air blower.

2.11 When completely dry weigh the sample of chippings and record the mass as W2. Record weight in Box 9.

2.12 Calculate the sand retained on the chippings as

$$\frac{W2 - W1}{W1} \times 100 \text{ (g/kg)}$$

2.13 Examine the chippings individually beside the window and reject those having less than half sand cover. Weigh the rejected chippings and records as W3.

3. Reporting

3.1 Report the quality of the chippings as the mass of sand retained per kilogram to the nearest gram, and the percentage of mass of chippings rejected to the nearest 0.1%.