

IA Checklist

T 27 Sieve Analysis of Fine and Coarse Aggregate

Procedure	P	F	NA
1			
Sample the Aggregate in accordance with R 90. Thoroughly mix the sample and reduce it to an amount suitable for testing using the applicable procedures described in R 76. The sample for test shall be the approximate mass desired when dry and shall be the end result of the reduction. Reduction to an exact predetermined mass shall not be permitted.			
2			
Fine Aggregate-The size of the test sample of aggregate, after drying, shall be 300g minimum.			
3			
Coarse Aggregate-The mass of the test sample shall conform to the table in Section 7.4 of AASHTO T 27. (See Table 1 on page 2 of checklist.)			
4			
If the sample has not been subjected to testing by T 11, dry it to a constant mass at a temperature of 110 +/- 5° C (230 +/- 9 ° F). Determine and record the mass of material to the nearest 0.1 percent of the original dry sample mass.			
5			
Select sieves with suitable openings to furnish the information required by the specifications covering the material to be tested. Use additional sieves as desired or necessary to provide other information, such as fineness modulus, or to regulate the amount of material on a sieve to meet the requirements of Annex A1. Nest the sieves in order of decreasing size of opening from top to bottom and place the sample, or a portion of the sample if it is to be sieved in more than one increment, on the top sieve.			
6			
Agitate the sieves by hand or mechanical apparatus for a sufficient period, established by trial or checked by measurement of actual test sample, to meet the criterion for adequacy of sieving described in Annex A2 of T 27.			
7			
Prevent an overload of material on an individual sieve as described in Annex A1 by one or a combination of methods found in Section 8.3.1 of T 27.			
8			
Sieve until not more than 0.5% by mass of the total sample passes a given sieve with 1 minute of hand sieving as described in Annex A2 of T 27.			
9			
Determine the mass of material retained on each sieve to the nearest 0.1%			
10			
If the sample was previously washed, AASHTO T 11, add the mass of material passing the 75µm (#200) sieve determined by washing to the mass of material passing by dry sieving.			
11			
The total mass of material after sieving should check within 0.3% of the mass of the original dry sample to use results for acceptance purposes.			
12			
Calculate the percentages passing each sieve to the nearest 0.1% on the basis of the total mass of the initial dry sample.			
13			
Calculate the fineness modulus, when required, and report to the nearest 0.01.			
14			
Report percentages to the nearest whole number, except if the percent passing the #200 sieve is less than 10%, it shall be reported to the nearest 0.1%.			

Equipment		P	F	NA
Balance				
1	Are calibrations records current?			
2	A balance of sufficient capacity, be readable 0.1% of the sample mass or better and conforms to the requirements of AASHTO M 231			
3	Sieves conforming to the requirements of ASTM E11			
4	Mechanical sieve shaker, if used, creates motion of the sieves, causes the particles to bounce, tumble or otherwise turn. The sieving action is such that the criterion for adequacy of sieving described in Annex A2 of T 27, is met in a reasonable time period.			
5	Oven-An oven of appropriate size capable of maintaining a uniform temperature of 110 +/- 5° C (230 +/- 9° F)			

Table 1

Type of Aggregate	Nominal Maximum Size Square Openings, mm (in.)	Minimum Mass of Test Sample kg (lb)
	9.5 (3/8")	1 (2)
	12.5 (1/2")	2 (4)
#67 Aggregate, Type 'A' Agg Base, Type 'E' TBSC	19.0 (3/4")	5 (11)
#57 Aggregate	25.0 (1")	10 (22)
	37.5 (1 1/2")	15 (33)
	50 (2")	20 (44)
	63 (2 1/2")	35 (77)
	75 (3")	60 (130)
	90 (3 1/2")	100 (220)
	100 (4")	150 (330)
	125 (5")	300 (660)

Remarks: