AGGREGATE SAMPLING METHODS & DETERMINATION OF MINIMUM SIZE OF SAMPLES FOR SIEVE ANALYSIS

SCOPE

This IM sets forth approved sampling methods and the minimum amount of dry materials necessary for the determination of particle size distribution.

LOCATION FOR SAMPLING

To help ensure representative samples are taken, one of the following methods will be used for obtaining aggregate samples:

1. Conveyor Belt/Template Method

   To obtain an off-the-belt sample: stop the belt, insert a template (as illustrated in the pictures below) at three or more separate locations along the belt, remove all material within the template, and combine it into the sample. In belt sampling, the ends of the template should be spaced just far enough apart to get an increment approximately one-third the minimum mass (weight) of the sample. If the template does not yield the minimum size of sample in three locations, additional locations will be necessary. No less than three separate locations should be used in obtaining one sample.

2. Stream Flow Method

When obtaining a sample by interception of the aggregate stream flow, care must be exercised, so the sampling device (See picture below.) passes quickly through the entire stream flow and does not overflow. At least three separate passes shall be made with the sampling device when obtaining a sample. Each pass is an increment of the sample. This is normally considered to be the best method to obtain a representative sample of coarse aggregate.

3. Stockpile Method (for fine aggregate only, or as directed by the District Materials Engineer)

Stockpile sampling of fine aggregate may be accomplished by either using a shovel or a sand probe. When obtaining a field sample by the stockpile method, a minimum of three increments shall be taken at different locations around the stockpile. Avoid sampling in areas prone to segregation, such as along the bottom of cone stockpiles.

NOTE: Stockpile sampling of coarse aggregate should be avoided. If it becomes absolutely necessary to obtain a sample from a stockpile, consult the District Materials Engineer to help devise an adequate and proper sampling plan.

SHIPPING SAMPLES

Transport aggregate samples in bags or other containers constructed to preclude loss or contamination of the sample, or damage to the contents from mishandling during shipment.

Shipping containers for aggregate samples shall each have suitable identification attached and enclosed so that field reporting, laboratory logging and testing may be facilitated.

SAMPLE SIZES

Minimum sample sizes for sieve analysis of aggregates are based on the maximum size of the product and the intended use. The following table lists the required minimum field sample and test sample sizes based on the smallest sieve through which at least 95% of the sample will pass.

SIEVE SIZE	FIELD SAMPLE (lbs./kg)	TEST SAMPLE (gms/kg)
1½ in. (37.5 mm)	50/23.0	5,000/5.0‹2›
1 in. (25.0 mm)	30/13.5	3,500/3.5
¾ in. (19.0 mm)	20/9.0	2,000/2.0
½ in. (12.5 mm)	20/9.0	1,500/1.5
⅜ in. (9.5 mm)	10/4.5	1,000/1.0‹1›
#4 sieve (4.75mm)	10/4.5	500/0.5
#8 sieve (2.36mm)	10/4.5	200/0.2

(Products with maximum sizes over 1½ in. (37.5 mm) are normally visually inspected. Contact the appropriate District Materials Engineer.)

(1) When testing fine aggregate for PC Concrete, the minimum test sample is 500 grams.
(2) When testing 1 1/2" aggregate for Special Backfill, Granular Subbase, or Modified Subbase the minimum test sample is 2500 grams.