



Standard Test Procedures Manual

Section: SAMPLING

Subject: SAMPLING FINE AND COARSE
AGGREGATES

1. SCOPE

1.1 Description of Test

This method covers the sampling of coarse and fine aggregates for further testing as required.

2. APPARATUS AND MATERIALS

2.1 Equipment Required

Sampling pan.

Sample scoop.

Sample splitter and receptacles.

Sample bags or containers.

Sample identification tags.

2.2 Number and Masses of Field Samples

The required sample size is based on the type and number of tests to which the material is to be subjected.

Amounts specified in Table No. 1 will provide adequate material for routine testing and quality analysis.

For routine control, take one sample for every 2 hours of plant production.

**TABLE 1
GUIDE FOR SAMPLE SIZE**

Test	Maximum Nominal Size of Aggregate	Approximate Minimum Mass of Field Samples (kg)
Proctor Density	N/A	28
Lightweight Pieces	N/A	3
Sieve Analysis, Fractured Faces, Plasticity Index, Sand Equivalent	2.0 mm - 9.0 mm	3
	12.5 mm - 18.0 mm	5
	22.4 mm - 40.0 mm	10

Samples will be reduced at the laboratory to testing size with the use of a sample splitter or by the quartering method.

2.3 Shipping Samples

Transport aggregates in bags or containers that are constructed to prevent loss or contamination of any part of the sample, or damage to the contents from mishandling during shipment.

Enclose complete identification with the sample to facilitate reporting of test results.

3. PROCEDURE

3.1 Sampling from the Conveyor Belt

Obtain at least three approximately equal increments selected at random from the unit or lot being sampled and combine to form a field sample whose mass equals or exceeds the minimum recommended in Table No. 1.

Stop the conveyor belt while the sample increments are being obtained.

Select a representative section in the middle of the belt. Remove enough material from within the selected section such that the material contained will yield the required weight. Carefully place all material into a container.

3.2 Sampling from a Flowing Aggregate Stream (Bins or Belt Discharge)

Select samples by random method from the production.

Sample from belt discharge only when plant is operating at normal capacity.

Sample from bin discharge only when bins are nearly full in order to minimize change of obtaining segregated material.

Obtain at least three approximately equal increments, at random and combine to form a field sample whose mass equals or exceeds the minimum recommended in Table No. 1.

Take each increment from the entire cross section of the material as it is being discharged.

For larger plants, a special sampling device may have to be constructed on site in order to accomplish the above requirement. A rail or pivot system should be constructed to convey a sampling pan through the discharge stream at a uniform rate. The pan must be large enough to intercept the entire flow and hold the required amount of sample without overflowing.

3.3 Sampling from Stockpiles

Avoid sampling from stockpiles whenever possible particularly when the sampling is done for the purpose of determining aggregate properties depending upon the gradation.

When sampling from stockpiles is unavoidable, design a sampling plan for the specific case. Take samples from many locations in the stockpile and combine them to form a field sample of sufficient size to conform to Table 1.

3.4 Sampling In Place On Road (Bases and Subbases)

Select sample blocks or areas from completed construction work representing 500 t of production, or in accordance with respective contact specifications.

Use a random method to select a representative sample from at least 3 sites within the area to be tested. Combine all 3 samples to form a single field sample that can be reduced as required to the specified size in accordance with the respective contract specifications and test procedures.

Clearly mark the specific areas from which the increment is removed. A metal template placed over the area is a definite aid in securing approximately equal increment weights.

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Take all samples from the roadway for the full depth of the material, taking care to exclude any underlying material.

3.5 Sampling From Windrow

Select sample blocks or areas from completed construction work representing 500 t of production, or in accordance with respective contract specification.

Use a random method to select a representative sample from at least 3 sites within the areas to be tested. Combine all 3 samples to form a single field sample that can be reduced as required to the specified size in accordance with the respective contract specifications and test procedures.

4. ADDITIONAL INFORMATION

Aggregate samples may be taken for one of several reasons such as preliminary investigation of the source of supply, to control the product at the source of supply or to control operations at the site and to accept or reject material.

Sampling is equally as important as the testing and the sampler must use every precaution to obtain samples which will show the true nature and condition of the materials which they represent. Sampling from the initial or final material discharge from a conveyor belt or a bin increases the chances of segregation and should be avoided. The samples are to be taken while the plant is in full operation.

Samples for preliminary investigation testing are obtained by the party responsible for the development of the potential source (e.g. Gravel Investigation).

Where practical, samples to be tested for quality should be obtained from the finished product.

5. References

ASTM C702 and ASTM D75