

ND T 248 – REDUCING SAMPLES OF AGGREGATE TO TESTING SIZE

Conduct this procedure according to ND T 248.

Consult the current edition of AASHTO for procedure in its entirety and equipment specification details.

SCOPE

This method covers the reduction of large samples of aggregate to the appropriate size for testing. Techniques used should minimize variation in measured characteristics between the test samples selected and the entire sample. The end product should be a sample representative of the source.

REFERENCED DOCUMENTS

ND T 2 and AASHTO T 2, Sampling Aggregates
AASHTO T 248, Reducing Samples of Aggregate to Testing Size

APPARATUS

Sample splitter
Straightedge shovel
Broom
Canvas or cloth
Brush

TEST SPECIMEN

Obtain sample according to ND T 2.

PROCEDURE

Two methods for reducing a sample are acceptable and either method may be used. A mechanical splitter is faster and more convenient than quartering. When reducing a sample by either method, do not attempt to obtain a sample of a predetermined weight. Divide and re-divide a large sample until the size of sample is within a desired range.

“Method A” - Mechanical Splitter

Sample splitter shall have an even number of equal width chutes, but not less than a total of eight for coarse aggregate, or 12 for fine aggregate. The chutes must discharge alternately to each side of the splitter. For coarse aggregate and mixed aggregate, the minimum chute width shall be approximately 50% larger than the largest particle in the sample to be split. For dry fine aggregate with 100% passing the 3/8" sieve, use a splitter with chutes 1/2" to 3/4" wide.

Use a splitter with two receptacles and a hopper or straight-edged pan with a width equal to, or slightly less, than the overall width of the assembly of chutes. The receptacles hold the two sample halves following splitting. The hopper or straight-edged pan allows sample feeding at a controlled rate into the chutes.

Mix the sample thoroughly. Place the receptacles under the splitting chutes. Close the chute shut-off valve. Pour the sample into the chute hopper and distribute the sample evenly over the full length and width of the hopper. Pull the lever to allow the material to free flow through the chutes into the receptacles below. To further reduce the sample to the desired size, repeat the process using the material from one of the receptacles.

“Method B” - Quartering

Place the sample on a firm, fairly smooth surface, such as a floor, board, a piece of cloth, or canvas. Mix the material thoroughly by turning the entire sample over three times. While turning the sample the last time, deposit each shovelful on top of the preceding one to form a conical pile. If a canvas is used, alternately lift the corners and pull over the sample as if preparing to fold the canvas diagonally.

Flatten the material into a circular layer of uniform thickness by pressing down the apex with a shovel. The diameter shall be approximately four to eight times the thickness.

Divide the sample into approximately four equal parts by striking two perpendicular lines through the center of the sample. If a canvas is used, the separation may be accomplished by passing a broom handle underneath the canvas and lifting slightly. This must be done twice to form the two perpendicular lines of separation. Separate the four parts completely. Use a brush to make sure that all the fines are included in each part.

Next discard the two diagonally opposite quarters. Be careful to discard all the remaining fines from the discarded sections. Re-mix the remaining quarters and repeat the process until you obtain the desired sample size from the diagonally opposite quarters.

NOTES

For a very dry sample, uniformly dampen the material to prevent segregation and loss of fines.

A sample that has free moisture may be dried to at least surface-dry condition at a temperature that does not exceed those specified in any of the tests that will be completed on the sample.

A quick method to determine surface-dry is if the fine aggregate retains its shape when molded in the hand, it is wetter than surface-dry.