SAMPLING OF AGGREGATES

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AGGREGATE STREAMFLOW

Before taking a sample, you must first assemble all the equipment you will need to obtain the sample. To obtain a sample using the aggregate streamflow, you will need the following:

1. Sampling device designed for use at each particular plant. This device consists of a pan of sufficient size to intercept the entire cross section of the discharge stream and retain the required quantity of material without overflowing. In some situations, a set of rails may be necessary to support the pan as it is passed through the streamflow.

2. Safety equipment such as hard hat, glasses, etc.

3. Sample containers, tags, etc.

Sampling Procedure

Pass the sampling device through the streamflow, being sure to cut through the entire cross section of the material as the aggregate is being discharged (Figure 1). Care must be taken to pass the device through the stream rapidly enough to prevent any overflow of material during the sampling procedure. Obtain a minimum of three increments for each sample. Be sure to obtain equal increments. Obtain the appropriate weight to accommodate all tests to be performed on the sample. Allow an amount of time to elapse between passes to better get a representative sample of the material. When sampling aggregate from a loaded bin, increments should not be obtained when the belt first starts or when the bin is nearly empty to avoid the natural segregation that may occur as the material exists in the bin.

Figure 1
Streamflow Sampling

CONVEYOR BELT

The equipment to sample from a conveyor belt is somewhat different than that used for sampling from a streamflow. The following is the equipment needed to secure a proper sample from a conveyor belt:

1. A template constructed to conform to the shape of the loaded belt. An adjustable spacer between the two ends of the template is helpful to allow for adjustment of the device to the amount of aggregate on the belt.

2. A scoop or trowel to aid in removing the aggregate from the stopped belt.

3. A brush or broom to aid in removing the fine particles of the increment from the belt surface.

4. Sample containers, tags, etc.

5. Safety equipment such as hard hat, gloves, glasses, etc.

Sampling Procedure

Insert the template into the aggregate on the stopped conveyor belt being sure the template passes through the aggregate and rests on the surface of the belt as close as practicable (Figure 2). Do not sample the portions of material first discharged on the belt or material discharged as the bin empties. These areas are normally segregated and the sample will not be representative. Using the small scoop or hand, remove as much of the aggregate from the belt as possible. Brush the remaining fines into the sample container. A dustpan may be useful in some applications to collect the fines. Obtain at least three increments for each field sample being sure to collect the minimum weight needed to perform all applicable tests. When practicable, allow the belt to run awhile between each increment. This will aid in obtaining a sample more representative of the material being tested.

Figure 2
Conveyor Belt Sampling

There are automatic belt sampling devices that have the advantage of sampling the aggregate without stopping the belt (Figure 3). These devices sweep the belt with a small scoop and this increment of the belt is deposited into a sampling container. The number of sweeps of the belt is determined by the required size of the sample.

Figure 3
Automatic Sampling Device