



INDIANA DEPARTMENT OF TRANSPORTATION Division of Materials and Tests

Directive 105

District Sample Proficiency Program

The District Sample Proficiency Program is a program whereby the District laboratories, District Production laboratories, and Independent Assurance Technicians are required to conduct tests on samples prepared by the Division of Materials and Tests to verify compliance with the required test procedures and testing equipment calibration. The types of materials, rating system, and required responses for test results not within tolerances will be as follows:

MATERIALS

Coarse aggregate, concrete, and fine aggregates samples will be prepared and sent to the Districts for testing. Each material will be distributed once each year with specific instructions concerning the required testing and reporting of the test results.

The coarse aggregate and fine aggregate samples will be sent to the District laboratories, District Production laboratories, and Independent Assurance Technicians. The concrete samples will be sent to the District laboratories. The Division of Materials and Tests laboratory will test all of the samples.

TEST METHODS

The tests that will be required for each material are listed in Attachment I.

RATING SYSTEM

Coarse Aggregate, Fine Aggregate

For coarse aggregate and fine aggregate samples there are a sufficient number of test samples to conduct a statistical analysis of the test data. Ratings are assigned based on the deviation from the mean of all of the data. The procedure will be as follows:

1. The mean and standard deviation is calculated using all of the data.
2. Data that is in excess of 3.0 standard deviations of the mean is assigned a rating of zero.
3. The data is reanalyzed with the remaining values after the data in step 2 has been excluded. If only one of a pair of test results for a given test is excluded based on the 3.0 standard deviation criteria noted in step 2 above, then the other test result is automatically excluded from the statistical analysis.

4. The data is then rated on the following scale:
 - Rating 5 - data within 1.0 standard deviation of the mean
 - Rating 4 - data within 1.5 standard deviations of the mean
 - Rating 3 - data within 2.0 standard deviations of the mean
 - Rating 2 - data within 2.5 standard deviations of the mean
 - Rating 1 - data within 3.0 standard deviations of the mean
 - Rating 0 - data 3.0 or more standard deviations from the mean

Concrete

The within-test and multi-laboratory precision section of AASHTO T 22 will be used to analyze the compressive strength, respectively, of the concrete cylinders.

DISTRICT RESPONSE

For coarse aggregate and fine aggregate samples, the Districts are required to submit comments addressing all ratings of two or less. For concrete samples, District comments are submitted for results exceeding the calculated allowable tolerances established from the submitted data. Items included in the response are required to address, as a minimum, the following areas:

1. Evaluation of the data for a miscalculation
2. A check on the equipment calibration or verification of calibration
3. A review of the procedure of the test method with the technicians

ATTACHMENT I**Coarse Aggregate**

AASHTO T 11	Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregate by Washing
AASHTO T 27	Sieve Analysis of Fine and Coarse Aggregate
AASHTO T 85	Specific Gravity and Absorption of Coarse Aggregate
AASHTO T 96	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D5821	Determining the Percentage of Fractured Particles in Coarse Aggregate
Standard Specifications -- Non-Durable Particles (904.03(a), Note 5)	

Concrete

AASHTO T 22	Compressive Strength
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Fine Aggregate

AASHTO T 11	Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregate by Washing
AASHTO T 21	Organic Impurities in Fine Aggregates for Concrete
AASHTO T 27	Sieve Analysis of Fine and Coarse Aggregate
AASHTO T 84	Specific Gravity and Absorption of Fine Aggregate
AASHTO T 304	Uncompacted Void Content of Fine Aggregate