

## NDDOT 1 - SAMPLING OF BITUMINOUS MATERIALS

Conduct these procedures according to NDDOT defined standards.

### SCOPE

The following sampling and testing procedures are for emulsified asphalt materials, performance graded asphalt cement, asphalt cutbacks, and crack and joint sealants.

### REFERENCED DOCUMENTS

AASHTO M 81, Cutback Asphalt (Rapid-Curing Type)  
AASHTO M 82, Cutback Asphalt (Medium-Curing Type)  
AASHTO M 320, Performance-Graded Asphalt Binder  
AASHTO M 324, Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavement

### APPARATUS

One gallon plastic, wide-mouth jar with a plastic cap with liner  
One liter metal, screw-top containers  
Manufacturer's original unopened container, either two 30-lb single sample boxes or one 55-lb double sample box.

### PROCEDURE

#### EMULSIFIED ASPHALT:

The following is a description of the NDDOT's procedure for sampling and testing emulsified asphalt materials in the Districts and Materials and Research Laboratory.

A sample is defined as two one-gallon plastic containers filled with the material to be tested. One gallon is tested as the original sample and the second gallon is used as a check if the original fails.

District Sampling and Testing:

- The District samples each truck load delivered to the project.
- Each sample will be retained until all testing is completed.

- The District labs test the Saybolt viscosity and sieve on one sample from the first truck load delivered to the project and then one random sample from the next four trucks delivered. The testing rate then goes to two random samples from each additional five truck lot, or fraction of a five truck lot.
- For CRS-2P emulsions the sampling rate will remain at one sample from each truck load delivered to the project. The sieve and Saybolt viscosity will not be tested unless the Engineer determines that there is a consistency problem with the emulsion.
- For all emulsions, one sample is randomly selected from the first and second halves of the project and sent to the Materials and Research Laboratory for assurance testing.
- Samples should be submitted in a timely manner because there is a time frame in which testing can be done.
- Label each sample container with the following information.
  - Project number
  - PCN number
  - Date sampled
  - Field sample number
  - Manifest number
  - Manufacturer
  - Grade of emulsion
  - Original or check

#### Materials and Research Laboratory Testing:

- The Materials and Research Laboratory tests the random sample from both halves of the project. If the samples pass, the entire project is accepted with no further testing.
- If one sample passes from either half of the project then that half is accepted with no further testing.
- If one sample fails, then all samples from that half of the project are submitted to the Materials and Research Laboratory for testing.
- The Materials and Research Laboratory will inform the District when sample submittal is required due to failing tests.
- The Materials and Research Laboratory will then test samples around the one that does not pass to determine a failing lot size. For example, there are four loads of emulsion delivered during the first half of a project and five loads for the second half of the project. The District submits Sample 3 from both halves of the project. Sample 3 from the first half passes and all material from the first half is accepted with no further testing. Sample 3 from the second half fails so the Materials and Research Laboratory will test Samples 2 and 4. If Sample 2 passes, Sample 1 is accepted with no further testing. If sample 4 fails, sample 5 is tested. If Sample 5 passes, the failing lot size is made up of loads 3 and 4. See table below.

First Half of Project				Second Half of Project				
Sample 1	Sample 2	Sample 3	Sample 4	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5

### **PERFORMANCE GRADED ASPHALT CEMENT:**

The following is a description of the NDDOT's procedure for sampling and testing performance-graded (PG) asphalt cement in the Districts and Materials and Research Laboratory.

A sample is defined as two one-liter metal, screw top containers filled with the material to be tested. One liter is tested as the original sample and the second liter is used as a check if the original fails.

#### **District Sampling and Testing:**

- NDDOT project personnel will observe the Contractor obtain samples from material delivered to the job site.
- The sampling rate will be a minimum of one sample for every 250 tons for each supplier and grade of asphalt cement, or fraction thereof.
- The sample shall be taken randomly within each 250 tons of material.
- A sample will consist of taking two one-liter samples from the designated transport.
- Both samples will be sent to the NDDOT Materials and Research Laboratory.
- Label each sample can with the following information.
  - Project number
  - PCN number
  - Date sampled
  - Field sample number
  - Manifest number
  - Manufacturer
  - Grade of asphalt
  - Original or check
- Extra samples are also obtained as directed by the Engineer when necessary.

#### **Materials and Research Laboratory Testing:**

- The Materials and Research Laboratory will randomly test one sample from each lot of four delivered.
- The testing will be the full battery of tests required by AASHTO M 320.

**ASPHALT CUTBACKS:**

The following is a description of the NDDOT's procedure for sampling and testing cutback asphalt in the Districts and Materials and Research Laboratory.

A sample is defined as two one-liter metal, screw top containers filled with the material to be tested. One liter is tested as the original sample and the second liter is used as a check if the original fails.

- NDDOT project personnel will observe the Contractor obtain samples from material delivered to the job site.
- Obtain two one-liter samples of cutback from each load delivered to the project.
- Submit one sample to the Materials and Research Laboratory and keep one in the field for a check sample.
- Label each sample can with the following information.
  - Project number
  - PCN number
  - Date sampled
  - Field sample number
  - Manifest number
  - Manufacturer
  - Type of cutback asphalt
  - Original or check
- Extra samples are also obtained as directed by the Engineer when necessary.

Materials and Research Laboratory Testing:

- The Materials and Research Laboratory will test each sample delivered from the project.
- The testing will be the full battery of tests required by AASHTO M 81 and AASHTO M 82 for the type of cutback delivered.

**CRACK AND JOINT SEALANT:**

The following is a description of the NDDOT's procedure for sampling and testing crack and joint sealant material in the Districts and Materials and Research Laboratory.

District Sampling and Testing:

- The District will sample each lot of crack and joint sealer delivered to the project.

- The sample will consist of two boxes if the material is delivered in 30-lb single sample boxes.
- The sample will consist of one box if the material is delivered in 55-lb double sample boxes.
- All crack and joint sealers shall be submitted in the manufacturer's original unopened container.
- Completely fill out crack and joint sealer sample card and submit it with the sample.

Materials and Research Laboratory Testing:

- The Materials and Research Laboratory will test one sample brick from material delivered from the project.
- The testing will be the full battery of tests required by AASHTO M 324 for the type of material delivered.