Test Procedure for

SAMPLING BITUMINOUS MATERIALS, PRE-MOLDED JOINT FILLERS, AND JOINT SEALERS

TxDOT Designation: Tex-500-C

Effective Date: July 2019 – April 2020

1. SCOPE

1.1 These procedures apply to the sampling of liquid, semi-solid, or solid bituminous materials at the point of manufacture, and from bulk storage, tank cars, distributors, drums, or cakes, for the following purposes:

- preliminary investigation of material source,
- quality tests of bituminous materials at point of manufacture, and
- inspection of materials at the site of the project.

1.2 The test method is in several parts, containing procedures for the following:

- Part I—Sampling from Storage Tanks;
- Part II—Sampling from Pipelines;
- Part III—Sampling from Tank Cars, Trucks, or Distributors;
- Part IV—Sampling Blended Materials;
- Part V—Sampling from Drums, Packages or Cakes;
- Part VI—Sampling Pre-molded Expansion Joint Filler and Asphalt Plank;
- Part VII—Sampling Joint Sealers;
- Part VIII—Sampling Bituminous Adhesive;
- Part IX—Recording, Labeling, Packaging, Storing, and Shipping of Samples.

1.3 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

2. GENERAL PROCEDURES

2.1 Except as described in specific sections below, perform all sampling in accordance with AASHTO R66 - "Standard Practice for Sampling Asphalt Materials."

2.2 Use appropriate safety precautions when sampling or handling liquid or semisolid materials.

2.2.1 Use, as a minimum, the following personal protective equipment:

- gloves,
- glasses or goggles,

- long sleeve shirt,
- long pants, and
- shoes that cover the entire foot.

2.2.2 Open sample valves with caution, as asphalt materials in all types of containers may be under pressure.

PART I—SAMPLING FROM STORAGE TANKS

3. SCOPE

3.1 Refineries are required to store semi-solid asphalt, liquid asphalt, and emulsified asphalt in metal tanks provided with a number of drain cocks, depending on the capacity of the tank, located on the side at definite distances from the top.

3.2 Use the following procedure when sampling liquid bituminous materials from these storage tanks.

4. PROCEDURE

4.1 Sample in accordance with AASHTO R 66.

4.2 Do not take samples by dip or thief method from the top of the tank unless no other method of sampling is available.

4.3 When collecting samples for submission to the Department, samples from multiple elevations on the tank are not required except by the Engineer's request.

4.4 Record sample details and label the sample in accordance with Part IX.

PART II—SAMPLING FROM PIPELINES

5. SCOPE

5.1 When the pipeline fills tank cars, distributors, or drums; or when sampling from the asphalt line feeding the mix plant; take the sample directly from the pipeline.

5.2 A sampling pipe with valve, as described in AASHTO R 66, is required.

5.3 Use the following procedure when sampling liquid bituminous materials from pipelines.

6. PROCEDURE

6.1 Sample in accordance with AASHTO R66.

6.2 When unloading tanker trucks, collect a sample from the middle third of the unloading process.

6.3 Record sample details and label the sample in accordance with Part IX.

PART III—SAMPLING FROM TANK CARS, TRUCKS, OR DISTRIBUTORS

7. SCOPE

7.1 Use this procedure when sampling liquid or semi-solid bituminous materials from tank cars, trucks, or distributors.

8. PROCEDURE

8.1 Sample in accordance with AASHTO R 66.

8.2 Do not take samples by dip or thief method from the top of the vehicle unless no other method of sampling is available.

8.3 When sampling from a distributor nozzle, allow at least one full shot after the start of the workday, or after cleaning the spray bar, to insure that any cleaning agent has beencleared from the spray bar.

8.4 Record sample details and label the sample in accordance with Part IX.

PART IV—SAMPLING BLENDED MATERIALS

9. SCOPE

9.1 Use this procedure when the material supplier is blending finished grades of asphalt material directly into trucks using and automatic blending system.

10. PROCEDURE

10.1 Sample in accordance with AASHTO R 66.

10.2 Autosampling devices that collect samples during or throughout the unloading process may be used as approved by the Engineer, or as approved for use in the supplier's quality plan.

10.3 Record sample details and label the sample in accordance with Part IX.

PART V—SAMPLING FROM DRUMS, PACKAGES, OR CAKES

11. SCOPE

11.1 Use this procedure when sampling solid or semisolid bituminous materials from drums, packages, or cakes.

12. PROCEDURE

12.1 Sample in accordance with AASHTO R 66.

12.2 If the containers of material are not unreasonably large for shipment, use an entire container as a sample.

12.3 Collect the number of samples requested by the Engineer.

12.4 Record sample details and label the sample in accordance with Part IX.

PART VI—SAMPLING PRE-MOLDED EXPANSION JOINT FILLER AND ASPHALT PLANK

13. SCOPE

13.1 Use this procedure when sampling pre-molded materials, such as joint filler and asphalt plank.

14. MATERIALS

14.1 Box or light piece of plywood, 300 x 300 mm (12 x 12 in.).

15. PROCEDURE

15.1 Take a sample at least 300 x 300 mm (12 x 12 in.) for each thickness of material, for each type and for each producer.

15.2 When material is in irregular shapes or sizes, use a piece of at least 90,000 mm^2 (1 $ft.^2$) of each thickness, type, and producer as the sample.

Note 1—Do not use pieces less than 100 mm (4 in.) in any dimension as samples.

15.3 Enclose the sample in a box or tie it securely to a light piece of board or plywood and wrap it to avoid damage during shipment.

15.4 Record sample details and label the sample in accordance with Part IX.

PART VII—SAMPLING JOINT SEALERS

16. SCOPE

16.1 Use this procedure for all types of joint sealers, including hot-poured rubber, asphalt-rubber crack sealant, single component synthetic polymers, and two-component synthetic polymers. The manufacturer usually packages these materials in individual containers.

17. PROCEDURE

17.1 Avoid opening individual packages whenever possible. If the packages are not unreasonably large for shipment, use an entire package as the sample.

17.2 Sample large containers in accordance with Part V.

17.2.1 Seal new containers of any synthetic polymer materials immediately to, to minimize exposure to air and to prevent premature curing.

17.3 Collect smaller samples of hot-applied material directly from the applicator, after dispensing enough material to ensure any leftover product in the hose or applicator has been purged.

17.4 Collect the number of samples requested by the Engineer.

17.5 For two-component materials include specimens of each component, packaged together, of requisite sizes for the specified mix proportions.

17.6 Include specimens of primers with samples of sealants where primers are used.

17.7 Record sample details and label the sample in accordance with Part IX.

PART VIII—SAMPLING BITUMINOUS ADHESIVE

18. SCOPE

18.1 Use this procedure for sampling bituminous marker adhesive.

19. PROCEDURE

19.1 Obtain a 5.5 to 6.8 kg (12 to 15 lb.) segment in a box from each batch or lot. (The material, which is typically solid at room temperature, will have been hot-poured into the sample box by the manufacturer.)

19.2 When a shipment contains several batches, combine to make one lot, with one sample taken to represent the shipment.

19.3 Record sample details and label the sample in accordance with Part IX.

PART IX—RECORDING, LABELING, PACKAGING, STORING, AND SHIPPING OF SAMPLES

20. SCOPE

20.1 Use this procedure for recording, labeling, packaging, storing, and shipping of samples.

21. MATERIALS

21.1 Label maker, compatible with 24 mm (0.94 in.) TZe tapes and is able to connect to a PC and run P-touch Editor. 300 x 300 mm (12 x 12 in.).

Note 2—Examples include Brother P-touch label maker models PT-D600 or PT-P700.

21.2 TZe-S251 Extra Strength Adhesive Tape, temperature resistant from -80°C to 180°C (-112°F to 356°F) and rated for rough, textured and painted surfaces.

21.3 Shipping container, appropriate for shipping samples.

21.4 Labeling Marker, such as a Sharpie, magic marker, felt tip pen.

22. PROCEDURE

22.1 After acquiring the sample in the appropriate sample container, mark the sample container with the producer, producer facility location, grade, district, date sampled, and project information including highway and CSJ.

22.2 If the samples are shipped to MTD for testing, proceed to Section 22.3. If the sample is being stored, proceed to Section 22.4.

22.3 Log sample into SiteManager and generate a SiteManager ID. Populate the fields in SiteManager that are needed to positively identify the sample.

22.3.1 Generate a Form 202.

22.3.2 Copy and paste SiteManager ID into printer software and ensure bar code font Code 128 is selected

22.3.3 For asphalt samples, print three copies of the bar code and attach two bar codes to the sides of the sample container in the vertical direction.

Note 3—For samples composed of multiple samples, such as two part joint sealants, print and place as many bar codes as needed to attach two bar codes for each part of the products being tested, and print one additional bar code.

22.3.4 Print Form 202.

22.3.5 Place the samples in shipping container along with a copy of the Form 202 for each sample. Attach the additional bar code to the outside of the shipping container

22.3.5.1 If multiple samples are shipped in the same shipping container, attach the corresponding bar code for each sample to the outside of the shipping container

22.3.5.2 Do not include any other materials (e.g. aggregates, HMA, etc.) in the same shipping container used for shipping asphalt samples

22.3.5.3 Use wadded paper (e.g. newspapers) as packing material. Avoid materials such as shredded paper, bubble wrap, and Styrofoam pellets.

22.3.6 Obtain the tracking number and add it to the sample in SiteManager.

22.3.7 Ship the samples to MTD.

22.4 For samples for storage, transport the samples to the designated storage area (e.g. district laboratory, area office, or other approved storage area).

22.5 In SiteManager, associate the sample with the project information and document the number of transports received for each day.

22.6 Store the samples in the designated area for a minimum of one yr. for hot-applied asphalt binders and cutback asphalts or for two mo. for emulsified asphalts. Organize the samples by sample date and project.

Note 4—MTD may request these samples for additional testing later.