

## **ATT-42/95 SAMPLING, Asphalt**

### **1.0 SCOPE**

This method describes the procedures for obtaining representative samples of asphalt, crack sealer and crack sealing materials.

### **2.0 EQUIPMENT**

The following container types are used for sampling asphalt:

- a) One litre, oblong, screw top, metal cans which are used for all cutback asphalt with the exception of SC 3000,
- b) One litre, round, wide mouth, friction top, metal cans which are used for all asphalt cements and SC 3000 asphalt.
- c) Two litre, wide mouth, screw top, plastic jars which are used for all emulsified asphalt.
- d) Plastic bags which are used for unheated crack sealing materials.

All containers must be new, clean, and free of water, dirt, or any other foreign matter at the time of sampling.

Cardboard boxes are supplied for the one litre round and oblong metal cans.

Teri-cord gloves and a face shield must be worn while sampling.

A log book is required to enter the sample identification data.

### **3.0 PROCEDURE**

#### **3.1 General**

To be meaningful, a sample of asphalt must be representative, and must be handled carefully so that it does not become contaminated or altered before being tested.

All samples must be obtained by experienced technologists. Personnel must be fully familiar with the sampling procedure before they obtain samples without supervision.

Some samples have low flash points, high penetrations, low viscosities and erratic distillation test results. All of these are typical of solvent-type contamination. For example, experiments indicate that 0.1% diesel oil in asphalt cement (only one litre of fuel oil in 1000 litres of asphalt) may lower the flash point by as much as 17° C (Pensky-Martens flash point test), and increase the penetration by as much as 10 points.

### 3.2 Sample Size and Frequency

The required size of each sample is:

- One litre for asphalt cement or cutback asphalt samples.
- Two litres for emulsified asphalts.
- 5 kg for unheated crack sealants.

Samples are taken by the consultant and should follow the sampling and testing frequency outlined in the contract.

### 3.3 Sample Location

Asphalt samples may be obtained from an in-line sampling valve, as shown in Figure 1, or from a tanker mounted sampling valve, as shown in Figure 2.

Samples from an in-line sampling valve must be taken during the unloading operation. Take the sample after approximately half of the product has been unloaded and the unloading pump is turned off.

Samples from a tanker mounted sampling valve must be taken prior to or at the beginning of the unloading operation.

*At no time shall samples be taken at the end of the unloading operation, or from the discharge valve, or from the unloading hose.*

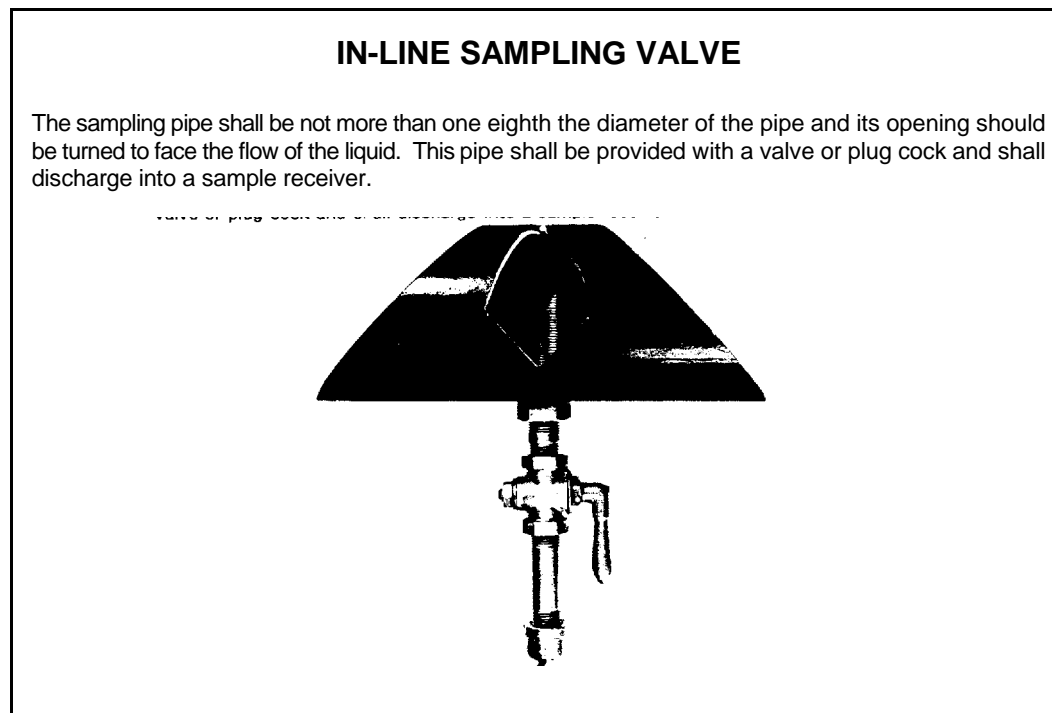


FIGURE 1

### TANKER MOUNTED SAMPLING VALVE

The sampling valve shall be mounted in the lower half of the rear bulk head, at least 300 mm from the shell. The valve control and the outlet shall be located so as to permit safe and convenient operation and sample gathering.

The inlet to the sampling valve assembly shall be at least 150 mm from the internal surfaces, and at least 300 mm from heating surfaces. The inlet shall be tipped downward at 20E to permit ready drainage when the asphalt level is below the level of the inlet.

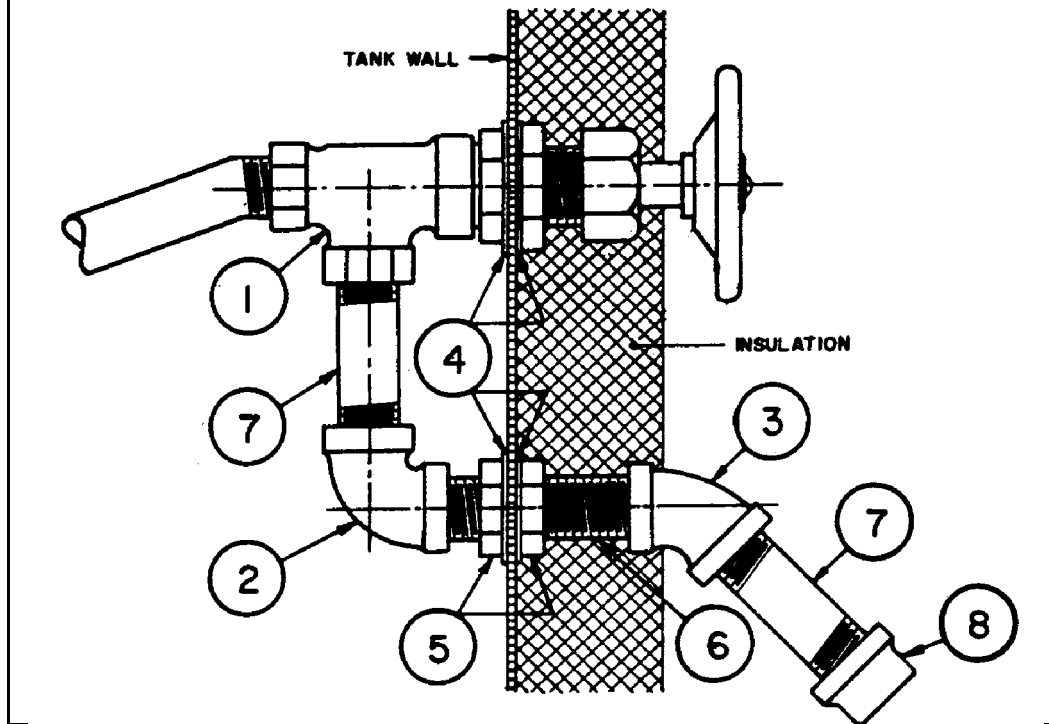


FIGURE 2

### 3.4 Sampling Asphalt Using the Sampling Valve

Notify the truck operator or contractor before obtaining the asphalt sample. If the tanker mounted or in-line sampling valve is plugged, it is the responsibility of the truck driver to unplug the valve.

Wear gloves and a face shield while obtaining the asphalt sample.

Obtain a representative sample of asphalt as follows:

1. Ensure the sample container is clean and free of water.
2. Ensure the valve is closed.
3. Unscrew the metal cap at the end of the spout.

4. Make sure the opening in the spout is not plugged with solidified asphalt.
5. Stand away and upwind from the sampling valve and open the valve.
6. Bleed off about four litres of asphalt into a container to clean out the line then close the valve.
7. Wrap a sheet of paper around the sample container, covering it entirely. This will help keep the exterior of the container clean while sampling.
8. Hold the sample container under the opening.
9. Open the valve very slowly, so that the asphalt stream is slow and steady.
10. Fill the oblong cans with cutback asphalt to within 10 mm of the top. Fill the round cans with asphalt cement and the plastic jars with emulsified asphalt to within 20 mm of the top.
11. Shut off the valve, remove the container and allow the asphalt remaining in the spout to drip into a container or onto a piece of paper.
12. If sampling cutback or emulsified asphalt, screw the top on immediately after sampling, to prevent evaporation. If sampling asphalt cements, **loosely** place the lid on the container immediately after sampling, to prevent contamination.
13. When the asphalt stops dripping, wipe the spout clean and replace the cap.
14. Once the asphalt cement sample has cooled, tightly seal the friction top container.

### 3.5 Safety

Observe the following safety precautions when sampling asphalt:

1. Wear a hard hat, gloves and a face shield.
2. Pull down and fasten the shirt sleeves on the coveralls over the top of each glove.
3. **Do not smoke** when near the delivery truck tank or asphalt storage tank.
4. If possible, stand above and away from the sampling valve, to the upwind side.
5. Open the sampling valve very slowly, so that the asphalt stream is slow and steady, preventing spillage.
6. Keep cool clean water near the sampling site, in case of an accidental asphalt spill.

### 3.6 Treatment of Asphalt Burns

Should hot asphalt cement contact your skin:

1. Cool the affected area immediately. Use any cold liquid, however, ice water is preferred.
2. Do **not remove** the asphalt adhering to the skin as it will fall off after a week of healing. Since the asphalt is very hot, the burn will be sterile.
3. Once the area has been cooled, seek medical aid.

### 3.7 Sample Identification and Shipping

1. After the sample is taken, obtain the following sample identification data from the delivery truck driver, or from the plant operator at the control booth.

-Asphalt Supplier	-Batch No.
-Refinery Location	-Truck No.
-Asphalt Type and Grade	-Bill of Lading No.

The information is on the delivering truck's bill of lading and should be recorded in the plant log book.

2. Bring the sample to the field laboratory trailer.
3. Take the container out of the case and remove the paper.
4. If required and while the sample is hot, use a dry clean cloth or paper towel to clean the container. Never submerge the container in solvent and never use a solvent soaked rag to clean the container.
5. Complete an Asphalt Sample Identification form, MAT 6-13, and attach it to the container.
6. Place the sample in a cardboard box.
7. Ship the asphalt cement samples when the box is full. Cutback asphalt samples, especially the rapid curing type, and emulsion samples should be shipped as soon as they are obtained.
8. Complete one Shipping Tag, for each cardboard box and affix the tag to the box.
9. Ship the samples.

### 3.8 Sampling Cold Pour Emulsified Crack Filler

One sample of crack filler from each batch that is delivered is required for quality assurance testing. Obtain the sample as follows:

1. Ensure that the drums are well mixed with a drill and mixing paddle.
2. Pump the material from one of the mixed drums into a distributor tank.
3. When the drum is about half empty, stop pumping into the distributor tank and pump some of the material into a 2 litre emulsion container.
4. When the container is full, securely tighten the lid.
5. Complete a Crackfiller Sample Identification form (MAT6-67) and attach it to the container, or mark the container with the following information:
 

- Name and address of the supplier	-Type of material
- Batch number(s)	-Date
- Delivery slip number	-Sample location

### 3.9 Sampling Crack Sealer

1. For each lot, randomly select a block or a drum of the delivered crack sealer.
2. Insert a plastic bag into another.
3. Use a clean knife to cut off a slice of material straight down to the full depth of the block, as shown in Figure 3.
4. Take a representative sample of the sealer of approximately 5 kg.
5. Place the sample in the inside plastic bag and tightly seal the bag.
6. Complete a Crackfiller Sample Identification form (MAT6-67) and fold the form.
7. Insert the form in the outside bag and tightly seal the bag.
8. Complete a shipping tag, MAT 6-18 and affix the tag to the outside bag.

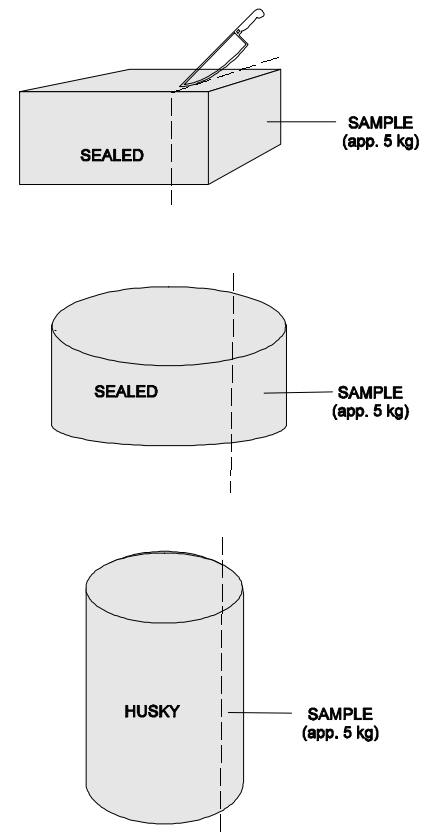


FIGURE 3