

Recommend Approval: <u>Rebecca [Signature]</u> 5-22-12 Team Leader Date	Maryland Department of Transportation State Highway Administration Office of Materials Technology MARYLAND STANDARD METHOD OF TESTS	
<u>[Signature]</u> 5/31/12 Division Chief Date	<b>PROCEDURES FOR CHECKING ASPHALT DRUM MIX PLANTS</b>	
Approved: <u>[Signature]</u> 06/06/12 Director Date	<b>MSMT</b> <b>453</b>	

**SCOPE:**

These procedures are used in conjunction with the Specifications for checking Asphalt Drum Mix plants to assure plant conformance. This procedure is used for original plant approval, annual plant approval, after plant relocation, trouble shooting, or at the discretion of the Engineer. Some variations from this procedure may be necessary depending upon the configuration of the plant, including volumetric plants.

All work stated below is required to be completed by the plant prior to notifying the Administration for plant approval. Documentation will be provided to the Administration that the tests have been completed and meet specification tolerances.

The scales used for plant calibration must meet Section 915.01.04

**BELT SCALES ON COLD FEEDERS**

Plants will check each individual belt scale, including RAP, at its high range and low range, as rated by the manufacturer; also considering the plant’s actual production rates. A minimum of ten tons of material will be used per test run. The allowable error shall not exceed  $\pm 1.0\%$ . A minimum of two tests will be run at each range to check for repeatability and eliminate any outliers.

The Administration will check belt scales at the mid-range using the procedure listed below.

**PLANT TEST PROCEDURE:**

1. Each bin and its belt scale are tested individually.
2. Some plants may have to use a zero percent moisture input to ensure accuracy.
3. Check the belt scale accuracy at both high range and low range by running material over the belt scale and checking the indicated computer weight (accumulator) against the actual net weight of the material in the truck.
4. The allowable error shall not exceed  $\pm 1.0\%$  from the actual truck scale weight.
5. The final belt scale (totalizer) will be checked at its high range and low range, as rated by the manufacturer; also considering the plant’s production rate. A minimum of ten tons of material will be used per test run. The allowable error shall not exceed  $\pm 0.5\%$ .

**ADMINISTRATION VERIFICATION PROCEDURE:**

1. Randomly select two or more cold-feed bins.
2. Check the belt scale accuracy at mid-range by running material over the belt scale and checking the indicated computer weight (accumulator) against the actual net weight of the material in the truck.
3. If one failure occurs at mid-range, run a second check. If two failures occur, the plant must recalibrate the failing feeder and notify the Administration to schedule another check.

**BELT SCALE ON VOLUMETRIC PLANTS**

**PLANT TEST PROCEDURE:**

1. The final belt scale will be tested using two high-range runs and two low-range runs. The allowable error shall not exceed  $\pm 0.5\%$ .

**ADMINISTRATION VERIFICATION PROCEDURE:**

1. Check the belt scale accuracy at mid-range by running material over the belt scale and checking the indicated computer weight (accumulator) against the actual net weight of the material in the truck.
2. If one failure occurs at mid-range, run a second check. If two failures occur, the plant must recalibrate the failing belt scale and notify the Administration to schedule another check.

**ASPHALT METER ACCURACY**

The Asphalt Meter is checked at its estimated highest and lowest production rate. Run two checks at each rate.

**TEST PROCEDURE:**

1. Enter the correct specific gravity or lb/gal for the liquid asphalt being used for the test into the computer system. A minimum of 1,000 gallons liquid asphalt will be run through the meter.
2. The accuracy requirement is  $\pm 0.5\%$ . The result equals the allowable variation of the metered asphalt quantity, weighed on a state-approved scale, and compared to the computer (accumulator) quantity.
3. A minimum of two tests run at the high rate and low rate will provide repeatability and

eliminate any outliers.

4. If one failure occurs at either high or low range, the plant must recalibrate. If a second failure occurs the plant must recalibrate the system and schedule another check with the QA Field Inspection team.

### **MINERAL FILLER SYSTEM**

If mineral filler is added separately and does not come into contact with the other aggregates until it is in the drum mixer, it is handled in the same manner as the Asphalt Meter check.

#### **MATERIALS AND EQUIPMENT:**

Tanker truck with sufficient capacity for calibrating mineral filler.

#### **TEST PROCEDURE:**

The mineral filler is pumped through its meter into a tared tank truck where it is weighed on an approved truck scale and compared against the quantity as recorded by the plant automation. Repeatability of two tests must meet + 0.5%; if not, the plant must recalibrate the mineral filler system and notify the Administration.

### **ANTI-STRIPPING ADDITIVE CALIBRATION**

Anti-stripping additive calibration check shall be performed in a manner satisfactory to the Engineer; with at least two different production rates and two different percentages of additive rates.

### **NO-FLOW SYSTEM**

Aggregate and Asphalt Interlocks must shut the plant down if a no-flow situation occurs.

#### **TEST PROCEDURE:**

1. The no-flow test will be run on each cold feed bin including RAP.
2. Material will be placed in the bin, and the bin will be allowed to run empty. A warning must occur immediately followed by plant shutdown.
3. The Asphalt System will be placed in a “No-Flow” condition and a warning must occur immediately followed by plant shutdown.

**VOLUMETRIC BACKUP SYSTEM**  
*(For plants using belt scales on all the cold feeders)*

A volumetric backup system will be approved in accordance with Section 915.02 (g).

**REPORTS:**

1. After the Yearly Drum Plant Calibration is complete, the producer will supply the Engineer with a printout of all calibration numbers which verify the accuracy of the system and show that it meets all Administration specifications.
2. The Producer will supply upon request either a display or printout of all calibration numbers that verify the accuracy of the system had not changed since the annual calibration and still meets Administration specifications.