Kentucky Method 64-401-05
Revised 12/28/04
Supersedes KM 64-401-03
Dated 02/18/03

CALIBRATING AND CHECKING COLD-FEED FLOW ON ASPHALT MIXING PLANTS

1. SCOPE:

1.1. This test method describes the procedure for calibrating the cold-feed flow from the cold-aggregate storage bins at an asphalt mixing plant. Use this procedure when determining the percentage of polish-resistant aggregate in various wearing course applications.

1.2. Samples obtained from this procedure may be retained for other testing purposes (insoluble residue, percentage of crushed faces, magnesium carbonate, sand equivalent, etc.) as applicable.

2. APPARATUS:

2.1. Provide platform scales with a minimum capacity of 10 kg and a minimum sensitivity of 1 percent. If platform scales are not available, use the standard balance normally found in the asphalt mixing plant laboratory.

2.2. Provide buckets, pans, and/or other suitable containers sufficient to obtain the material from the entire cross-section of the aggregate flow.

3. SAMPLE: Obtain a representative sample from each cold feed as applicable.

4. PROCEDURE:

4.1. Perform the calibration or check by obtaining samples from each cold feed as applicable, weighing each sample, and converting the sample weights to a percentage of the total aggregate weight. Since many types of cold feeds exist, develop a detailed procedure individually for each plant. However, essentially two general methods for checking the rate of flow from each feed exist.

4.1.1 The preferred method is the “equal time” method; for this procedure, obtain a sample from each feed for the same amount of time. Since it is more indicative of normal plant operations, use the “equal time” method whenever possible.

4.1.2 The second method is the “equal length” method; in this case, measure off the same length of flow of each aggregate from the cold-feed belt after stopping the flow. If “clumping” of the aggregate occurs when using the “equal length” method, spread the material from three to five “clumps” as evenly as possible along a length of the belt prior to obtaining the sample.

4.2. Perform cold-feed checks with the plant in normal operation if possible. When necessary, however, cease plant operations to perform the checks twice daily. Also, cease plant operations if it is unsafe to check the cold feeds with the plant in operation. NEVER ATTEMPT TO TAKE SAMPLES WHEN THE PLANT IS OPERATING UNLESS IT IS SAFE. When the plant flow is erratic, obtain more than one sample, and average the results, to achieve a more representative value.

4.3. The Department may accept plants that have digital cold-feed displays, showing the percentage of aggregate from each cold feed, by display only. In these cases, the Department will require a comparison of physical checks versus the display prior to acceptance by display only. Perform periodic verification of this comparison.

5. EXAMPLE CALCULATION: The mixture in question is a CL4 ASPH SURF 0.50A PG76-22. According to Subsection 403.03.03 of the Standard Specifications, this mixture requires that 100 percent of the coarse aggregate be from Class A polish-resistant sources and that 20 percent of the total combined aggregate be Class A polish-resistant fine aggregate.

5.1. Sample each aggregate used in the mix, and convert the sample weights to a percentage of the total.

Dolomite # 8's	4390	g of polish-resistant coarse aggregate (PRC)
Crush. Grav. Sand	2000	g of polish-resistant fine aggregate (PRF)
Limestone Sand	4570	g
TOTAL	10,960	g

The only coarse aggregate in the mixture is the Class A dolomite #8's. Therefore, the PRC requirement is satisfied, and it only remains to check the PRF. Calculate the PRF as follows:

$$PRF = \frac{2000}{10{,}960} = 18.2\%$$

Therefore, the percentage of Class A polish-resistant fine aggregate is 18 percent.

5.2. In this example, an appropriate reaction to these results would be to increase the feed for the crushed gravel sand to satisfy the 20 percent polish-resistant fine aggregate requirement. After performing this adjustment, check all the feeds again.

NOTE 1: Locate the allowable tolerances for individual aggregates in the applicable specification.

6. REPORT:

6.1. Record all values to the nearest whole number.

6.2. Record the results for all aggregate components on the *Asphalt Mixtures Acceptance Workbook (AMAW)*.

APPROVED _____
Director
DIVISION OF MATERIALS

DATE _____12/28/04_____

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