

8.20 MEASUREMENTS AND PAYMENT COMPUTATIONS

8.21 ASPHALT BINDER

When payment for an HMA mixture is based on megagrams (tons), payment will be made for asphalt binder as a separate item. Compensation will be made for all megagrams (tons) of asphalt binder incorporated into the construction within specification tolerances. This includes payment for asphalt binder from Recycled Asphalt Materials (RAM) that is incorporated into the project. RAM includes Recycled Asphalt Pavement (RAP) and Recycled Asphalt Shingles (RAS). RAP is salvaged asphalt pavement. The specifications address payment for asphalt binder in Classified, Certified, or Unclassified RAP when provided from a contractor-owned stockpile or from RAP furnished by the contracting authority. RAS consists of pre-consumer (factory scraps) or post-consumer (tear-off) shingles that have been processed, sized and certified from an approved supplier. The percentage of RAS used in the mix is considered part of the maximum allowable RAP percentage. The quantity of asphalt binder in RAM, incorporated into the mix, is calculated in megagrams (tons) based on the actual asphalt binder content determined for the mix design from the Engineer's extraction tests.

Megagrams (tons) of asphalt binder paid for is not deducted from megagrams (tons) of HMA mixture measured for payment. When payment for HMA mixture is based on square meters (square yards), no separate payment is made for asphalt binder. The contractor includes cost of asphalt binder as part of cost per unit area.

Asphalt binder will be measured for payment by tank stick measurement or calibrated meter reading. Asphalt binder supplier weigh tickets for liters (gallons) of asphalt binder delivered to the plant site are not acceptable for pay quantity, but the asphalt binder quantity added to the storage tank shall be computed from a supplier certified transport ticket accompanying each load. Use of supplier certified transport tickets makes it unnecessary for the contractor to have a second asphalt binder storage tank on site for sticking asphalt binder deliveries or for the transports to weigh at a nearby scale before and after delivery.

Under the certified plant inspection program, the plant monitor will observe tank stick measurements on the first day of mix production and a minimum of once per week thereafter. When a flow meter is used for measuring the quantity, the plant monitor will observe a 4-hour tank measurement and compare the outage to the 4-hour metered quantity.

When small quantities, normally 45 Mg (50 tons) or less, of asphalt binder are involved, design plan may state that asphalt binder is considered incidental to HMA. Check bid item subnotes for this reference.

For specific mixes used as patching materials, or in an alternate bid situation, no payment will be made for asphalt binder. Examples include surface patches, partial depth patches, full depth patches, and detour pavement.

Tank Measurement and Asphalt Binder Content Determination

For continuous plants, drum mixing plants, or batch plants where asphalt binder is proportioned through a calibrated metering pump, certified plant inspectors measure the asphalt binder for payment. This shall be done by daily initial and final tank stick

measurement or meter readings, and computing asphalt binder added to the storage tank during the day from certified supplier transport tickets.

At batch plants, automatic or semi-automatic printouts record actual weight of asphalt binder in each separate batch, this quantity may be used for payment.

Volume measurements will be converted to weights by computation. The amount in storage at beginning of project will be measured or estimated by inspector and added to amount measured for payment. Asphalt binder remaining in storage at end of project and amount otherwise not used in the work will be measured or estimated by inspector and deducted from amount measured for payment.

Refer to [Materials I.M. 509](#) for correct procedures in tank stick measurement and asphalt binder content determination. "Daily Virgin AC Tank Measurement Sheet" (Forms E216 and M216) is to be used by plant inspector to compute final net asphalt binder pay quantity and percent asphalt binder by tank stick.

Any corrections should be reported to contractor and recorded on daily report forms. Upon project completion, the completed "Daily Virgin AC Tank Measurement Sheet" (Forms E216 and M216) shall be incorporated in project file.

Measuring Asphalt Binder for Small Quantities

By mutual agreement, the method of measuring asphalt binder for payment may be modified when small quantities or intermittent operations are involved.

If a recorded weight is not available, quantity may be calculated from intended asphalt binder percent with HMA plant meter results providing further verification. For small quantities on a given day, the previous day's tank stick may be used as a check.

Project inspector should document procedure selected and reasons for doing so.

Asphalt Binder Quantities and Pay Adjustments

Asphalt binder contract quantities for a project are estimated based on a basic asphalt binder content for mixture size and type. Target asphalt binder percentage to be used is then set by job mix formula. Where it is anticipated that quantity of asphalt binder used will result in a substantial change as defined in [Construction Manual 2.36](#), a change order shall be written prior to accomplishing the work. Project engineer is responsible for checking asphalt binder percentage established by job mix and initiating the change order.

When noncomplying Dynamic Shear Rheometer (DSR) and/or Bending Beam Rheometer (BBR) Stiffness tests occur, payment for asphalt binder incorporated into affected HMA mixture is subject to price adjustment per the provisions of [Construction Manual 2.53](#).

8.22 TARGET VALUES FOR ASPHALT BINDER CONTENT IN JOB MIXES

The 0.3 percent tolerance specified for asphalt binder content is provided for reasonable individual variances only. Whenever regular and repeated variances from target values occur, project engineer shall insist on quick and corrective action by contractor to secure proportions at target values, not simply within tolerance.

The previous paragraph applies specifically to asphalt binder content, but similar specification requirements and definitions also apply to aggregate tolerance and target values. Refer to [Materials I.M. 508](#).

8.23 WEIGHING OF HMA MATERIALS

[Specification 2001.07, B](#), covers equipment and procedures for weighing of HMA materials. When automatic or semi-automatic weighing is used, continuous direct observation of the weighing process by a scale inspector is not required. For manual weighing of loaded trucks, project engineer may assign a scale inspector. This normally occurs only when accuracy in the weighing procedures is in question.

When witnessing is required, scale inspector should be positioned near contractor's scale operator so weighing can be closely observed. Contractor's representative shall write the scale tickets and present them individually to scale inspectors for their signatures or initials before each truck leaves the plant.

Inspection personnel should refer to [Construction Manual 3.50](#) and [Materials I.M. 508](#) for witnessing and verification requirements and inspector duties.