



2015 SCDOT - TACK COAT BEST PRACTICES FOR: ASPHALT TACK COAT

Tack coat problems - When tack coat is not properly applied, roadway slippage and delamination of overlay from underlying pavement may occur.

There are four essential requirements for a successful tack coat application:

- Existing pavement surface must be dry and thoroughly cleaned.
- Proper tack coat rate must be applied.
- Tack coat must break prior to trucks backing over the tack or placing a new asphalt layer.
- A uniform coverage of tack must be placed over the entire area to be paved.

Tack Coat Grades:

Ensure products are on Qualified Products List No. 38 (approved by the Asphalt Materials Engineer), the most commonly emulsions used in SC are:

- HFMS-1, HFMS-2, CRS-1, CRS-2, and Non-tracking.
- Asphalt emulsions used as tack must not be diluted with water once received from suppliers.
- Different grades (or manufacturers) should not be mixed in a storage tank, a tanker, or a distributor.

Existing Surface Preparation:

- Existing surface must be thoroughly cleaned and dry
- Existing surface should be swept with mechanical broom to ensure surface is free of dust and foreign material
- Ambient temperature of 35 degrees Fahrenheit or higher to be paving

Check Distributor Truck:

- Use correct nozzles for spraying tack.
- Equipment must be calibrated and in proper working condition when brought to jobsite.
- Thermometer: Check emulsion temperature in tank of distributor.
- Spray Bar Height: Recommended height is 11 to 12 inches from surface and application uses triple lap coverage.

- Nozzles: Use a nozzle set 30 degrees from spray bar to allow stream to pass by the adjacent nozzle stream.
- Application Rate: Check computer inside truck for reading to confirm target rate set by operator prior to any paving.
- Tank Gauge: Obtain readings on back of truck to verify quantity of emulsion before and after applications.

Measuring Tack Rate: SC-T-86

- Measure number of gallons applied (gallons before and after application)
Before application @ 150 degrees: 1910 gallons , after application:1845 gallons
Compute Difference: 1910 - 1845 = 65 gallons used*
Apply correction factor for temperature: 0.9775 (150 degree correction)= 63.5 gallons
- Measure the number of square yards of roadway where the tack was applied.
(Width of roadway in ft.) * (Length of roadway in ft.) / 9
Example: (12 ft. * 900 ft.) / 9 = 1200 SY
- Calculate tack rate in gallons per SY: 63.5 Gal/1200SY = 0.053 Gal / SY
- If gallons used or computed tack rate does not compare with rate on distributor truck’s computer - Ask contractor for distributor calibration information (Sticking the tank)*
*recommended when changing emulsion products and annually at a minimum.

Tack Coat Application Rates:

	Target Rate (Gal/SY) 130-160 degrees F		Target Rate (Gal/SY) See manufacturer’s recommendation for temperature
Existing Surface	HFMS -1, HFMS-2,	CRS-1, CRS-2	Trackless
New asphalt (hot - placed same day)	0.03	0.02	See manufacturer’s recommendation
New Asphalt (older than one day)	0.06	0.05	
Oxidized or Milled	0.08	0.07	
Concrete	0.08	0.07	

Emulsions heated over 180 degrees can make the asphalt material unstable and begin to “break in the tank”, also be sure and not rapidly heat or run the distributor too low on product to prevent breaking.

Uniform tack coat application:

Existing surface must be completely and uniformly covered with tack coat.

- Avoid “corn rows” or streaks in coverage
- Avoid spots with excessive tack

Ensure tack “breaks”

- Tack coat will turn from a **brown** color after placement on the surface to a **black** color after it breaks. Make sure tack “breaks” prior to trucks backing over the tack or prior to paving a new asphalt layer.