

SECTION 320

TACK COAT

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320.01 SCOPE

This section covers the requirements for the supply and application of Tack Coat to pavement surfaces prior to repaving with asphaltic concrete.

320.02 REFERENCES

Reference standards shall be the latest revision at the date of Tender closing. This specification refers to the following standards, specifications or publications:

- ASTM D997 “Standard Specifications for Emulsified Asphalt”
- ASTM D2397 “Standard Specifications for Cationic Emulsified Asphalt”
- ASTM D140 “Standard Practice for Sampling Bituminous Materials”
- ASTM D6997 “Standard Test Method for Distillation of Emulsified Asphalt”

320.03 DEFINITIONS

Tack Coat: An emulsified asphalt that is applied to pavement surfaces prior to repaving to aid in bonding asphalt lifts to form a monolithic pavement structure.

320.04 MATERIALS

Tack Coat shall consist of RS-1 emulsified asphalt conforming to ASTM D977 or CRS-1 emulsified asphalt conforming to ASTM D2397 or a non-tracking emulsion. The non-tracking emulsion shall be a Clean Bond Coat, or equivalent, applied un-diluted or diluted with a maximum of 40% water and shall meet the requirements of **Table 1** and **Table 2**. Dilution of the emulsion shall be permitted provided the Manufacturer’s dilution process is followed.

Table 1: Non-Tracking Emulsion Requirements (Prior to Dilute)

Test Type	Specification Range	
	Minimum	Maximum
Tests on Emulsions		
SF Viscosity, 25°C, SFs	20	-
Sieve Test, 850µm, %	-	0.1
Residue by Distillation, 260°C, %	55	-
Oil Portion of Dist, %	-	Trace
Particle Charge	(-) or (+)	
Test on Residue		
Penetration, 25°C, dmm	20	55
Ash Content, %	-	1.0

Table 2: Non-Tracking Emulsion Requirements (Diluted)

Test Type	Specification Range	
	Minimum	Maximum
Tests on Emulsions		
Residue by Distillation, 260°C, %	39.3	-
Test on Residue		
Penetration, 25°C, dmm	20	55
Ash Content, %	-	1.0

Should the Contractor wish to use an alternate product, then prior written authorization of the Owner’s Representative must first be obtained. A written request must be submitted to the Owner’s Representative a minimum of 14 days prior to the intended use of the alternate product. The Contractor’s request must include reasons for the use of the alternate product, manufacturer’s product literature, including testing reports and required application rates as well as applicable Safety Data Sheets.

The Contractor shall collect samples of emulsified asphalt as required by the Owner's Representative. The Owner's Representative may opt to request one random sample per day. Samples shall be taken from the Contractor's storage tank in accordance with ASTM D140. The sample size shall be at least eight litres placed in two separate four litre containers. Collection of the asphalt binder sample shall be witnessed by the Owner's Representative. The sample shall be appropriately identified including the time and date of sampling, type of emulsified asphalt, manufacturer, and refiner. If the sample is Clear Bond Coat it should also be recorded if the sample is un-diluted or diluted and the percentage of water added. The sample shall be immediately forwarded to the witnessing Owner's Representative.

It shall be the Department's responsibility to submit emulsified asphalt samples for quality assurance testing.

320.05 EQUIPMENT

Tack Coat shall be applied by means of an approved pressure distributor designed and equipped so that the emulsion may be applied uniformly at even heat on variable widths at easily determined and controlled application rates under uniform pressure. The distributor shall maintain a constant height of the spray bar as the tank is unloaded.

The distributor shall be equipped with a suitable thermometer with a minimum range from 10°C to 150°C placed to accurately show the temperature of the contents. The approved pressure distributor shall be equipped with a tachometer measuring speeds in meters per minute that is visible to the truck driver so as to maintain constant application speeds at specified rates. The distributor's pump shall be equipped with a tachometer registering liters per minute that is visible to the truck driver. The distributor shall be equipped with a hose and nozzle attachment to be used for spraying by hand, areas inaccessible to the spray bar.

All spray nozzles shall be in good condition and of the same type, orifice size and manufacturer and capable of producing a uniform fog-type spray without streaking. Prior to spraying the Contractor shall check with the Manufacturer to ensure the correct spray nozzles are being utilized. Clogged nozzles shall be removed and cleaned with solvent. The slot of each nozzle shall be set at 30 degrees to the axis of the spray bar and the spray bar shall be set at a height above the existing pavement that will permit the fan from each nozzle to overlap its neighbouring fan by exactly half. The spray bar shall be provided with a positive shut-off to prevent dribbling.

320.06 APPLICATION

Tack Coat shall only be placed on surfaces that are clean and dry, with no threat of precipitation or fog and then only when the atmospheric temperature is at least 10°C. The emulsion shall not be applied to a prepared surface when the surface temperature is less than 2°C.

Should the surface to be treated be dirty, then the Contractor shall thoroughly clean the surface by means of a power broom, or equivalent to ensure bonding of the Tack Coat.

Tack Coat shall only be placed on surfaces that are to the satisfaction of the Owner's Representative.

The Contractor shall plan their work so that no more Tack Coat than is necessary for the days paving operation is applied at one time.

To avoid nuisance and possible property damage to the traveling public, the Contractor shall install portable traffic lights or other means of directing one-way traffic while the Contractor is working on the adjacent part of the road. All other means of traffic control must be in accordance with Division 7 of the Specifications Book, Temporary Condition Signs and Devices and the latest version of the Departments Traffic Control Manual.

The spraying temperature shall be between 20°C and 70°C for RS-1 and Clean Bond Coat, 60°C and 80°C for CRS-1, or the temperature recommended by the manufacturer. This recommendation from the manufacturer shall be provided in writing to the Owner's Representative. Application rates shall meet the requirements of **Table 3**. On pavement which was placed during the previous construction season, the rate of application shall be as directed by the Owner's Representative. This rate will not exceed the rates provided in **Table 3**.

Table 3: Tack Coat Application Rates

Emulsion Type	Application Range
RS-1	0.15 to 0.25 l/m2*
CRS-1	
Clean Bond Coat Un-diluted	0.15 to 0.25 l/m2*
Clean Bond Coat diluted (40%)	0.25 to 0.35 l/m2*

* Or the Department approved application rate as recommended from the Manufacturer.

Tack Coat application shall be visually uniform. Areas of insufficient or non-uniform Tack Coat coverage shall be re-sprayed by the Contractor at no additional cost.

320.07 ENVIRONMENTAL PROVISIONS

The Contractor shall follow the requirements of Section 820, and the procedure for reporting spills.

320.08 CURING

No Hot Mix shall be placed upon the Tack Coat until it has dried to a proper condition of tackiness, as determined by the Owner's Representative. The Contractor is advised that the period required for such drying will depend upon weather conditions; generally it can be 1 hour or more.

Where appropriate, the Contractor shall keep traffic off the Tack Coat to maximize product performance.

320.09 QUALITY ASSURANCE

Quality assurance (QA) is the responsibility of the Department. In addition to QA testing used to determine unit price adjustment, the Department may, at its sole discretion, examine, inspect or test any aspect of the Contractor's work as deemed appropriate. Tack coat must be reapplied in areas deemed insufficient by the Owner's Representative and in areas where tack coat is picked up by the wheels of vehicular/construction traffic at no additional cost to the Department.

A price adjustment shall be applied to areas where testing indicates the actual residual asphalt content present in the Tack Coat fails to meet the requirements of ASTM D997/D2397 or the requirements of this specification. Residual asphalt content will be determined by ASTM D6997. Where testing indicates the actual residual asphalt content is lower than required, the unit price bid for Tack Coat will be reduced based upon the ratio of actual to required contents. There will be no additional compensation where testing indicates a residual asphalt content higher than the required amount.

320.10 MEASUREMENT FOR PAYMENT

Measurement for payment shall be by means of the horizontal area actually treated with Tack Coat lying within the area designated by the Owner's Representative for treatment. The area shall be computed in square meters, rounded to the nearest whole number.

320.11 BASIS OF PAYMENT

Payment at the contract price for Tack Coat shall be compensation in full for all labour, materials and equipment-use to; clean the existing surface, supply and apply the Tack

Coat, together with the provision of all required traffic control necessary.