

**Construction Specification for
Tack Coat**

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TS 3.20.01 SCOPE

This specification covers the requirements for the placement and acceptance of tack coating.

TS 3.20.02 REFERENCES

This specification refers to the following standards, specifications or publications:

Ontario Provincial Standard Specifications

OPSS 308 Construction Specification for Tack Coating and Joint Painting
OPSS 1103 Material Specification for Emulsified Asphalt

Ontario Ministry of Transportation Laboratory Testing Manual

LS-200 Penetration of Bituminous Materials
LS-216 Residue by Distillation

American Society of Testing and Materials

D 3665-07e1 Standard Practice for Random Sampling of Construction Materials

American Association of State Highway and Transportation Officials

T 40-02 Standard Method of Test for Sampling Bituminous Materials

TS 3.20.03 DEFINITIONS – Not Used

TS 3.20.04 DESIGN AND SUBMISSION REQUIREMENTS

At least 5 Days prior to the first use of tack coat on the Contract, the Contractor shall submit documentation to the Contract Administrator identifying the proposed supplier and applicator of the product. As part of this submission, the Contractor shall submit material safety data sheets and any other information for the safe handling and storage of the product.

TS 3.20.05 MATERIALS

Tack coating shall consist of SS-1 emulsified asphalt according to OPSS 1103.

TS 3.20.06 EQUIPMENT

The emulsion shall be applied evenly, by means of a pressure distributor which consists of a fully insulated tank permanently and rigidly mounted on a truck or trailer provided with pneumatic tires and propelled by a power unit capable of maintaining a constant and uniform speed.

The distributor shall be provided with the following minimum equipment requirements:

- a) Hand Hose: Proper hand hose attachments to uniformly apply the tack coat to any areas unavoidably missed by the distributor.
- b) Tachometer: An approved tachometer to enable the operator to maintain the necessary speed required to ensure the specified rate of application.

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- c) Power Unit: An independent, mechanically governed power unit for developing uniform pressures of from 140 to 345 kPa within the distributor tank or in the spray manifold. This unit shall include an accurate pressure gauge and a calibrated pressure pump equipped with a volume metering system. This system shall be capable of applying accurately measured quantities of bituminous materials at specified rates and pressures through the spray bars and nozzles.
 - d) Meter: The Contractor shall supply means acceptable to the City to measure the volume of tack coat placed in the work. The accuracy of the metering system shall be certified by the manufacturer and this certificate shall be made available to the City upon request. The metering system shall be accompanied by documentation confirming that it was calibrated within the past 12 months by the manufacturer or its authorized representative.
 - e) Spray Bar: Rear mounted spray bars and nozzles, set parallel to the surface to be sprayed and capable of vertical and lateral adjustment. The spray bars shall be capable of adjustment to provide a minimum spraying width of 2.5 m and a maximum spraying width of 7 m. The distributor shall be equipped with a spray bar heating device, circulating spray bars, or other suitable device to ensure a uniform viscosity and pressure of the bituminous material at each nozzle, both before and during spraying operations. Feed manifolds or spray bars shall be provided with strainers to prevent clogging of bars and nozzles. The spray bar height shall be adjusted and set at such a height that the spray fan from any nozzle overlaps the spray fan from the adjacent nozzle by 50 per cent. This adjustment shall be made and the height set when the distributor is one-half full, and shall be changed only when so permitted by the City.
 - f) Nozzles: Spray bar nozzles shall be so designed and set as to ensure a uniform fan-shaped spray without atomization, overlapping on the surface to be sprayed, such that a uniformly sprayed surface will result. Spraying to clearly defined edges of the sprayed lane with no tapering off of the rate of application adjacent to the edges of the lane will be required. All spray nozzles shall be of the same manufacture, size and type, and shall be provided with valves capable of instant full opening and positive cutoff. All spray nozzles shall be set in the bar so that the nozzle slots make the same horizontal angle (15° – 30°) with the longitudinal axis of the bar.
 - g) Sampling Cock: A sampling cock shall be provided on the spray bar or connecting line, and shall be readily accessible to allow field samples of the bituminous materials to be obtained directly from the distributor.

A hand sprayer may be used for small areas provided that, the sprayer meets the requirements of a) and c), listed above and that the emulsion shall be agitated by mechanical means to provide a homogeneous mixture. Units that rely on hand operated pumps to control the pressure will not be permitted.

TS 3.20.07 CONSTRUCTION

Surfaces to be tack coated shall be free of standing water and contamination, such as mud, dust, loose aggregate, or debris. All designated pavement surfaces which are to be covered with hot mix shall be coated with SS-1 asphalt emulsion diluted with an equal volume of water.

The asphalt base course or concrete base shall be swept clean with a power broom, or other approved equipment that shall leave a clean, dry surface, free of dust and other objectionable material.

The diluted SS-1emulsion shall be applied to the surface immediately following the cleaning of the surface, at the rate of 0.35 kg/m². The tack coating shall form a thin, unbroken film on the asphalt base course or concrete base and be allowed to dry until it is in a proper condition of tackiness to receive the asphalt course. Tack coat shall be applied ahead of the paver to accommodate no more than two hours of production of the hot mix. Paving and construction equipment shall not be permitted onto the tack coat until it has broken and set. Hot mix asphalt shall not be placed on tack-coated areas until the tack coat has cured to a proper condition of tackiness. Traffic shall be prevented from travelling upon the tack coat. The tack coat shall be protected from damage until covered by the asphalt surface course.

Tack coat shall be applied to the following:

- protection board
- existing pavement surfaces including hot mix and Portland cement concrete
- milled pavement surfaces

TS 3.20.08 QUALITY ASSURANCE

Representative samples of material may be taken for conformance testing according to the requirements of OPSS 1103. Samples for quality assurance testing shall be representative of the material being used and shall be obtained at the paving site according to AASHTO T40 and ASTM D 3665. The minimum quantity of quality assurance samples shall be one litre.

The Contract Administrator shall determine the acceptability of the tack coating by visual inspection. Areas of insufficient or non-uniform tack coat coverage shall be re-sprayed by the Contractor at no extra cost to the City. Where tack coating is performed using hand-held devices, the visual appearance of such areas shall be consistent with the adjacent areas of machine applied material.

All visual defective materials or work shall be rejected by the Contract Administrator irrespective of any test results. Such defective material and work shall not be incorporated into the finish Work.

TS 3.20.09 MEASUREMENT FOR PAYMENT

TS 3.20.09.01 Tack Coat

Measurement of tack coat shall be by the area in square metres (m²).

TS 3.20.10 BASIS OF PAYMENT

TS 3.20.10.01 Tack Coat

Where there is no separate tender item for tack coat, payment for tack coat shall be included in the hot mix asphalt tender item.

If the application of the tack coat was necessitated through the fault of the Contractor as determined by the Contract Administrator, no payment shall be made for any labour, Equipment and Material or incidentals involved in the application of the tack coat.

Payment for tack coating completed in association with bridge deck waterproofing shall be deemed to be included in the bridge deck waterproofing item.

TS 3.20.10.02 Tack Coat – Item

Where there is a separate tender item for tack coat, payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the work.

If the application of the tack coat was necessitated through the fault of the Contractor, as determined by the Contract Administrator, no payment shall be made for any labour, Equipment, Material or incidentals involved in the application of the tack coat.