

302-4 EMULSION-AGGREGATE SLURRY.

302-4.1 MATERIALS. Material for emulsion-aggregate slurry shall conform to 203-5.

302-4.2 MIXING.

302-4.2.1 General. Mixing shall be performed by continuous-flow mixer. All aggregate particles shall be uniformly saturated and coated with asphalt.

302-4.2.2 Continuous-Flow Mixers. The slurry mixer shall be a multiblade or spiral continuous-flow unit in food working condition capable of accurately delivering a predetermined proportion of aggregate, water, emulsion, additive and asphalt modifier to the mixer and of discharging the thoroughly mixed slurry on a continuous basis. Each mixer shall have a metering device to measure the quantity of water in gallons used in each load of slurry and a separate metering device or equivalent which meets the approval of the Engineer to measure the quantity of emulsified asphalt used in each load of slurry.

The spreader box shall be equipped with flexible material in contact with the pavement and shall be maintained so as to prevent loss of slurry. It shall be adjustable to ensure a uniform controlled spread and be equipped with a mechanical or hydraulic type horizontal shifting device.

302-4.3 APPLICATION.

302-4.3.1 General. The work shall consist of mixing asphaltic emulsion, aggregate, additive, and water and spreading the mixture on the pavement where shown on the Plans. Type I and Type II slurry shall be applied at the application rate shown in Table 302-4.3.1 (A).

TABLE 302-4.3.1 (A)

Slurry Seal	Min.	Max.	Min.	Max.
Type I	8 lbs./yd ²	11 lbs./yd ²	ELT/2950ft ²	ELT/2145ft ²
Type II	11 lbs./yd ²	15 lbs./yd ²	ELT/2120ft ²	ELT/1555ft ²

ELT = Extra Long Ton. All the calculations are based on 20% water content.

An extra long ton of slurry is made up of 2,000 pounds of dry aggregate plus asphalt, accelerators or retardant, and water. Quantities and applications rate shall be approved by the Engineer. When the Engineer determines that the application rate does not conform to the requirements, the Contractor shall take immediate corrective action. When the rate is less than the minimum amount required, the Contractor shall reapply additional slurry seal to nonconforming area to meet the requirements. When the rates exceed the maximum specified in Table 302-4.3.1 (A), the Engineer should refer to 4-1.1.

The sites for stockpiling and batching materials shall be clean and free from objectionable material. Arrangements for these sites shall be the responsibility of the Contractor.

Hand squeegees and other hand equipment shall be provided to remove spillage and spread slurry in areas inaccessible to the spreader box.

The Contractor shall have two fully operational mixers for use at the project site at all times. These mixers shall be available for inspection by the Agency at least 48 hours prior to commencing work.

302-4.3.2 Spreading. Slurry shall not be applied when the atmospheric temperature is less than 50°F. The maximum speed of the slurry machine shall not exceed 270 feet per minute.

The application of slurry shall not commence until after 7:00 a.m. and the slurry shall be sufficiently cured to be open to traffic by 4:00 p.m... The streets to be sealed shall be closed from the time the application begins until the Engineer determines the mixture has achieved sufficient set to be opened to traffic.

Prior to applying slurry, the surface to be sealed shall be cleaned by the Contractor unless otherwise specified. Immediately ahead of the mixer, the pavement shall be prewetted by a pressure water distribution system equipped with a fog-type spray bar which will completely fog the surface of the pavement. The need for application and the rate of application will be determined by the Engineer.

Evidence of solidification of the asphalt, balling or lumping of the aggregates, or the presence of uncoated aggregates will be caused for rejection of the slurry.

Slurry shall be applied in such a manner that no ridges shall remain.

The Contractor shall prevent slurry from being deposited on other than asphalt concretes surfaces and shall remove slurry from surfaces not designated to be sealed at no cost to the Agency. The method of slurry removal shall be approved by the Engineer.

At the direction of the Engineer, the Contractor shall repair and reseal all areas of the streets which have not been sealed properly or completely, at no cost to the Agency.

Where the completed slurry is not uniform in color, the street shall be treated to eliminate the color variation at the Contractor's expense. The method of treatment shall be approved by the Engineer.

302-4.3.3 Field Sampling. During the performance of the work, the Agency will take at least two field samples of the mixed slurry per mixer per day. All field samples shall have the following values:

TABLE 302-4.3.3 (A)

Tests	ASTM Test Method	Requirements	
		Min.	Max.
Wet Track Abrasion Test (Weight loss, gms/sqf)	D 3910	0	50
Consistency Test (cms)	D 3910	1	3
Extraction Test (Emulsion Content, %)	D 2172	± 1.0 % of mix design	
Water Content, % of Dry			
Aggregate Weight	D 2172	-	25

Subsection 6.4.4.7 of ASTM D 3910 may be modified to use microwave oven for drying the abrasion cycle and wash off debris.

If the test results fail to meet the specifications, the Contractor shall cease slurry laydown operations with the nonconforming mixer until demonstrates the ability to comply with the Specifications.

No change in the proportions of the approved mix design will be permitted without the Engineer’s approval. If the Contractor changes its source of supply for either the aggregate or the emulsion, the mix design approval and the quality control procedures specified herein shall be repeated. Mixes used shall not deviate more than ± 1.0 percent from the approved proportion of emulsion. (Example: If the approved mix is 16 percent emulsion, then the emulsion content must be between 15 and 17 percent.) The percentage of emulsion is based on the dry weight of aggregate.

302-4.4 PUBLIC CONVENIENCE AND TRAFFIC CONTROL. At least 5 working days prior to commencing work, the Contractor shall submit its spreading schedule to the Agency for approval. This schedule shall allow residents on the streets to be sealed ample “on street” parking within a reasonable distance from their homes. Based upon the spreading schedule, the Contractor shall notify residents and businesses of the work and post temporary “No Parking” signs. Requests for changes in the schedule shall be submitted by the Contractor to the Engineer for approval at least 48 hours prior to the schedule sealing of the streets affected.

The Contractor shall be responsible for adequate barricading of the work area and controlling of traffic in the vicinity of the project as specified in 7-10, or as directed by the Engineer.

When necessary to provide vehicular or pedestrian crossings over the fresh slurry, the Engineer shall direct the Contractor to spread sufficient sand or rock dust on the affected area to eliminate tracking or damage to the slurry. Sand or rock dust used for this purpose shall be at the Contractor’s expense.

302-4.5 MEASUREMENT AND PAYMENT. Slurry will be paid for at the Contractor Unit Price per extra long ton or as shown in the Bid. When payment is to be made on an extra long ton basis, the quantity will be determined by the tonnage of dry aggregate used in the slurry.

The contract unit price paid per extra long ton shall include compensation for furnishings emulsion, accelerator or retardant, and water.

302-4.6 PAYMENT REDUCTION FOR NONCOMPLIANCE.

302-4.6.1 General. Payment to the Contractor will be reduced for failure to comply with Wet Track Abrasion Testing requirements stated in 302-4.3.2. The percent reduction in payment for failure to comply will be based on requirements stated in 302-4.6.2. Reduction in payment will be applied to the material placed per day by the nonconforming slurry mixer.

302-4.6.2 Reduction in Payment Based on WTAT. If the average of all Wet Truck Abrasion Tests made per slurry mixer per day by the Contractor fail to conform to the requirements specified in 302-4.3.2, the Contractor agrees that payments for the work represented by the failed tests shall be reduced as follows:

TABLE 302-4.6.2 (A)

WTAT Loss (g/ft²)	Payment Reduction (Percent)
0 — 50	0
50.1 — 60	5
60.1 — 70	15
70.1 — 80	30
80.1 — 99	70

99.1 or greater¹

100

1. Slurry seal with WTAT loss greater than 99.1 g/ft² shall be removed to the satisfaction of the Engineer.