ITEM 409 - SEALING, MISC.: ASPHALT REJUVENATING AGENT

PER CITY OF MARYSVILLE SUPPLEMENTAL SPECIFICATION 1540
(Reclamite Sealer)
June 10, 2009

CITY OF MARYSVILLE
PUBLIC SERVICE DEPARTMENT
STREET AND STORM DIVISION

1540.1 Description
1540.2 Specifications and Materials
1540.3 Material Performance
1540.4 Applicator Experience
1540.5 Handling of Rejuvenating Agent
1540.6 Resident Notification
1540.7 Application Equipment
1540.8 Application of Rejuvenating Agent
1540.9 Street Sweeping
1540.10 Traffic Control
1540.11 Method of Measurement
1540.12 Basis of Payment

ASPHALT REJUVENATING AGENT

(Reclamite Sealer)

1540.01 Description

This work shall consist of furnishing all labor, material, and equipment necessary to perform all operations for the application of an asphalt rejuvenating agent to asphalt concrete surface courses. The rejuvenation of surface courses shall be by spray application of a cationic rejuvenating agent composed of petroleum oils and resins emulsified with water. All work shall be in accordance with the specifications, the applicable drawings, and subject to the terms and conditions of this contract.

1540.02 Material Specifications

The asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each bidder must submit with their bid a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements.

	SPECIFICATIONS TEST METHOD		Requirements	
Tests	ASTM	AASHTO	MIN.	MAX.
Tests on Emulsion:				
Viscosity @ 25°C, SFS	D-244	T-59	15	40
Residue, % W[1]	D-244(mod.)	T-59(mod.)	60	65
Miscibility Test[2]	D-244(mod.)	T-59(mod.)	No Coagulation	
Sieve Test, %W[3]	D-244(mod.)	T-59(mod.)	-	0.1
Particle Charge Test	D-244	T-59	Positive	
Percent Light Transmittance[4]	GB	GB	-	30
Tests on Residue from Distillation:				
Flash Point, COC, °C	D-92	T-48	196	-
Viscosity @ 60°C, cst	D-445	-	100	200
Asphaltenes, %w	D-2006-70	-	-	1.00
Maltene Dist. Ratio	D-2006-70	-	0.3	0.6
$\frac{PC + A_1}{S + A_2}$[5]				
PC/S Ratio[5]	D-2006-70	-	0.5	-
Saturated Hydrocarbons, S[5]	D-2006-70	-	21	28

[1] ASTM D-244 Modified Evaporation Test for percent of residue is made by heating 50 gram sample to 149°C (300°F) until foaming ceases, then cool immediately and calculate results.

[2] Test procedure identical with ASTM D-244-60 except that .02 Normal Calcium Chloride solution shall be used in place of distilled water.

[3] Test procedure identical with with ASTM D-244 except that distilled water shall be used in place of two percent sodium oleate solution.

[4] Test procedure is attached.

[5] Chemical composition by ASTM Method D-2006-70:
PC = Polar Compounds, A_1 = First Acidaffins
A_2 = Second Acidaffins, S = Saturated Hydrocarbons

1540.03 Material Performance

The rejuvenating agent shall have a record of at least five years of satisfactory service as an asphalt rejuvenating agent and in-depth sealer. Satisfactory service shall be based on the penetration value of the asphalt binder as follows. The viscosity shall be reduced by a minimum of 45 percent and the penetration value shall be increased by a minimum of 25 percent. Testing shall be performed on extracted asphalt cement from a pavement to a depth of three eighths inch (3/8”). In addition, the pavement shall be in-depth sealed to the intrusion of air and water.

The bidder must submit with their bid the manufacturer’s certification that the material proposed for use is in compliance with the specification requirements. The bidder must submit with their bid, previous use documentation and test data conclusively demonstrating that; the rejuvenating agent has been used successfully for a period of five years by government agencies such as cities, counties, etc.; and that the asphalt rejuvenating agent has been proven to perform, as heretofore required, through field testing by government agencies as to the required change in the asphalt binder viscosity and penetration number. Testing data shall be submitted indicating such product performance on a sufficient number of projects, each being tested for a minimum period of three years to insure reasonable longevity of the treatment, as well as product consistency.
The product "Reclamite"® for the asphalt rejuvenating agent as manufactured by Golden Bear oil, a division of Tricor Refining, LLC. is the standard for these specifications. Any product substituted for "Reclamite"® must meet this Standard, and be approved by the City Engineer.

1540.04 Applicator Experience

The asphalt rejuvenating agent shall be applied by an experienced applicator of such material. The bidder shall have a minimum of three years experience in applying the product proposed for use. They must submit with their bid a list of

five projects on which they applied said rejuvenator. They shall indicate the project dates, number of square yards treated in each, and the name and phone number of the representative in charge of each project.

A project superintendent knowledgeable and experienced in application of the asphalt rejuvenating must be in control of each day's work. The bidder shall submit a written experience outline of the project superintendent.

The contractor responsible for applying the asphalt rejuvenating agent shall maintain a current, written Storm Water Pollution Prevention Plan (SWPPP) that complies with all relevant Ohio Environmental Protection Agency (OEPA) regulatory requirements. Prior to the commencement of application operations, the contractor shall conduct SWPPP training of all personnel actually applying the asphalt rejuvenating agent. At all times, the contractor shall ensure that a current copy of their SWPPP is present on-site, wherever the asphalt rejuvenating agent is being applied.

1540.05 Handling of Asphalt Rejuvenating Agent

Contents in tank cars or storage tanks shall be circulated at least forty-five minutes before withdrawing any material for application. When loading the distributor, the asphalt rejuvenating agent concentrate shall be loaded first and then the required amount of water shall be added. The water shall be added into the distributor with enough force to cause agitation and thorough mixing of the two materials. To prevent foaming, the discharge end of the water hose or pipe shall be kept below the surface of the material in the distributor which shall be used as a spreader. The distributor truck will be cleaned of all its asphalt materials, and washed out to the extent that no discoloration of the emulsion may be perceptible. Cleanliness of the spreading equipment shall be subject to the approval and satisfaction of the Engineer.

1540.06 Resident Notification

The Contractor shall distribute by hand, a typed notice to all residents and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

1540.07 Application Equipment

The distributor for spreading the emulsion shall be self-propelled, and shall have pneumatic tires. The distributor shall be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of surface at readily determined and controlled rates from 0.05 to 0.5 gallons per square yard of surface, and with an allowable variation from any specified rate not to exceed 5 percent of the specified rate.

Distributor equipment shall include full circulation spray bars, pump tachometer, volume measuring device and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the emulsion within the tank.

A check of distributor equipment as well as application rate accuracy and uniformity of distribution shall be made when directed by the Engineer.

The truck used for sanding shall be equipped with a spreader that allows the sand to be uniformly distributed onto the pavement. The spreader shall be able to apply 1/2 pound to 3 pounds of sand per square yard in a single pass. The spreader shall be adjustable so as not to broadcast sand onto driveways or treelawns.

The sand to be used shall be free flowing, without any leaves, dirt stones, etc. Any wet sand shall be rejected from the job site.

Any equipment which is not maintained in full working order, or is proven inadequate to obtain the results prescribed, shall be repaired or replaced at the direction of the Engineer.

1540.08 Application of Rejuvenating Agent

The temperature of the asphalt rejuvenating emulsion, at the time of application shall be as recommended by the manufacturer. The asphalt rejuvenating agent shall be applied only when the existing surface to be treated is thoroughly dry. Additionally, application of the asphalt rejuvenating agent shall be prohibited when weather forecasts indicate a chance of a rain event in the work area, which would produce in excess of 0.10 inches of rain within four hours of the application of the asphalt rejuvenating agent. The contractor shall perform follow-up inspections of stormwater inlets, culverts, and drainage ditches (in accordance with the contractor's SWPPP) in the vicinity of the asphalt rejuvenating agent application operations, whenever a precipitation event, in excess of 0.10 inches of rain, occurs during a two day period following application of the asphalt rejuvenating agent. The asphalt rejuvenating agent shall not be applied when the ambient temperature is below 40° F.

The asphalt rejuvenating agent shall be applied by a distributor truck at the

temperature recommended by the manufacturer and at the pressure required for the proper distribution. The emulsion shall be applied so that uniform distribution is obtained at all points of the areas to be treated. Distribution shall be commenced with a running start to insure full rate of spread over the entire area to be treated. Areas inadvertently missed shall receive additional treatment as may be required by hand sprayer application.

Application of asphalt rejuvenating agent shall be on one-half width of the pavement at a time. When the second half of the surface is treated, the distributor nozzle nearest the center of the road shall overlap the previous application by at least one-half the width of the nozzle spray. In any event the centerline construction joint of the pavement shall be treated in both application passes of the distributor truck.

Before spreading, the asphalt rejuvenating agent shall be blended with water at the rate of two(2) parts rejuvenating agent to one(1) part water, by volume or as specified by the manufacturer. The combined mixture of asphalt rejuvenating agent and water shall be spread at the rate of 0.05 to 0.10 gallons per square yard, or as approved by the Engineer.

Where more than one application is to be made, succeeding applications shall made as soon as penetration of the preceding application has been completed and approval is granted for additional applications by the Engineer.

Grades or super elevations of surfaces that may cause excessive runoff, in the opinion of the Engineer, shall have the required amounts applied in two or more applications as directed.

After the street has been treated, the area within one foot of the curb line on both sides of the road shall receive additional treatment of the asphalt rejuvenating emulsion. Said treatment shall be uniformly applied by a method acceptable by the Engineer.

The Contractor shall furnish a quality inspection report showing the source, manufacturer, and the date shipped, for each load of asphalt rejuvenating agent. When directed by the Engineer, the Contractor shall take representative samples of material for testing.

1540.09 Street Sweeping

The Contractor shall be responsible for sweeping and cleaning of the streets prior to, and after treatment.

Prior to treatment, the street will be cleaned of all standing water, dirt, leaves, foreign materials, etc. This work shall be accomplished by hand brooming, power blowing or other approved methods. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All sand used during the treatment must be removed no later than 48 hours after treatment of the street. This shall be accomplished by a combination of hand and mechanical sweeping. All turnouts, cul-de-sacs, etc. must be cleaned of any material to the satisfaction of the Engineer. Street sweeping will be included in the price bid per square yard for asphalt rejuvenating agent.

If, after sand is swept and in the opinion of the Engineer, a hazardous condition exists on the roadway, the contractor must apply additional sand and sweep same no later than 24 hours following reapplication. No additional compensation will be allowed for reapplications and removal of sand.

1540.10 Traffic Control

The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and/or interference with the normal flow of traffic over the areas to be treated. Treated portions of the pavement surfaces shall be kept closed and free from traffic until penetration, in the opinion of the Engineer, has become complete and the area is suitable for traffic.

When, in the opinion of the Engineer, traffic must be maintained at all times on a particular street, then the Contractor shall apply asphalt rejuvenating agent to one lane at a time. Traffic shall be maintained in the untreated lane until traffic may be switched to the completed lane.

The contractor shall be responsible for all traffic control and signing required to permit safe travel. The contractor shall notify the police and fire departments as to the streets that are to be treated each day.

If, in the opinion of the Engineer, proper signing is not being used, the Contractor shall stop all operations until safe signing and barricading is achieved.

1540.11 Method of Measurement

Asphalt rejuvenating agent will be measured by the square yard as provided for in the Contract Documents. The accepted quantities, measured as provided for above, will be paid for at the contract unit price for asphalt rejuvenating agent.

1540.12 Basis of Payment

Asphalt rejuvenating agent shall be paid for per square yard for furnishing all materials, equipment, labor and incidentals necessary to complete the work as specified.

Item	Description	Unit
ITEM 409 -	SEALING, MISC.: ASPHALT REJUVENATING AGENT	SQUARE YARD