

BIO BASED SEALER AND POLYMER BINDER, ASPHALT REJUVENATING AGENT MATERIALS AND APPLICATION

General:

The Work in this section consists of furnishing materials and equipment necessary to perform all operations for the application of an asphalt rejuvenating agent. The rejuvenation of surface courses shall be by spray application of an agriculture based rejuvenating agent composed of soy oil derivatives and other agricultural oils. It shall be a Bio-based materials with a minimum of 75% bio-based content.

Traffic:

Disruption to traffic flow must be held to a minimum amount of time. Traffic safety is the most important concern. Traffic must not be allowed onto roadway until materials have cured and skid numbers are back to acceptable standards (80% minimum of original numbers). Sand cover will not be permitted. The rejuvenating material shall not obscure or obstruct any traffic stripping or raised reflective pavement markings from functioning correctly.

Performance:

Rejuvenation product must have a proven life cycle extension of 3 to 5 years depending on traffic volumes.

Specifications for Sealer and Polymer Binder:

Saybolt Viscosity at 77 F (25 C) ASTM D-244	5-20 SEC.
Residue/Heavy Oils by distillation, or evaporation (3)	15% MIN. 20%MAX
Percent Volatile	N/A
pH	not applicable
Solubility In Water	Emulsifiable
Specific Gravity	0.8500-0.8800(H2O=1.0)
Boiling Point	210-230 Degrees F
Appearance	Pale yellow liquid, citrus/pine
odor	

Specifications for Treated Pavement:

Kinematic Viscosity ASTM D2170	20%Decrease MIN
Penetration	20% Increase MIN
Asphalt Ignition Oven Report AASHTO T308 05	1- 2%INCREASE

Product Description:

Sealant and preservation agent is comprised of agricultural oils. It is designed to reverse the oxidation process as well as to give the pavement surface a more impermeable layer to prevent further oxidation. Moisture permeability is the principal cause of potholing and ultimate pavement deterioration. The sealant and preservation agent's unique chemistry penetrates into the asphalt matrix reducing the moisture penetration. The all-natural oils present help reverse asphalt oxidation in older asphalt pavements and prevent oxidation from occurring on new pavements.

All asphalt mixes for parking lots, city streets, county roads, airport runways, airport taxiways, and airport parking aprons will be given improved impermeability as well as a reversal of some of the oxidation forces that have started. Due to the sealant and preservation agent's concentrated form it is applied in very light application rates with specially designed spray equipment.

The sealant and preservation agent provides a seal without harming pavement stripping so re-stripping is not required and dries at the surface to allow traffic back on the pavement in less than 30 minutes but continues to work within the asphalt below for several weeks until the entire restorative process is complete.

Best results are accomplished with proactive aggressive preservation rather than a year 4th or 6 the year last chance strategy.

Application Experience:

The asphalt sealant and rejuvenating agent shall be applied by an experienced applicator of such materials. The applicator shall have a minimum of 3 years experience in applying asphalt rejuvenators.

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

Application Temperature/Weather Limitations:

The temperature of the sealant and preservation agent at the time of application shall be as recommended by the manufacturer. The sealant and preservation agent shall be applied only when the existing surface to be treated is thoroughly dry.

Handling of Sealant and Preservation Agent:

Contents in totes shall be agitated before withdrawing any material for application. Cleanliness of the spreading equipment shall be subject to the approval and satisfaction of the Engineer. Each tote shall be accompanied by a manufacturer's certificate of analysis.

Application Equipment:

Special agricultural spray equipment is probably best suited for application of the sealant and preservation agent.

The sealer and rejuvenator can not be applied using a bituminous distributor. Correct application rates would require unsafe speeds for standard unmodified asphalt distributors. Specially designed spray equipment is the preferred method of application and must be in good working order and contain no contaminants or dilutants in the tank. Equipment bar tips must be the correct size and must be clean and free of burrs.

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.

Application of Sealer and Polymer Binder:

Rate of application shall be determined by the texture, porosity, and age of the asphalt pavement to be sealed. The rate of application can vary from 0.010 to 0.020 gallons per square yard. The average rate will generally be 0.015 gallons per square yard. The optimum application rate shall be determined by owner with the assistance of the contractor's experience.

The material shall not be applied to wet or damp pavement surfaces. Do not apply during rainy or damp weather, or when rain is anticipated within one to two hours after application is completed.

Pavement surface temperatures shall be 40 degrees F (4 degrees C), and outside air temperatures shall be 40 degrees F (4 degrees C) and rising.

Traffic shall not be allowed on the roadway surface until the agricultural rejuvenator agent has penetrated and fully cured. Curing is generally 20-30 minutes with 50 to 80 degree F; cooler temperatures will cause the cure time to increase.

No Sanding Required:

The surface texture of the pavement to be sealed shall be checked prior to application of rejuvenator to verify a good skid value. A pavement with a poor skid value should not be treated with any type of rejuvenator. The sealant and or preservation agent should not be used on a poor skid value in an attempt to improve its skid value. Skid resistance testing shall be performed prior to application of sealant if there is a question.

Preparation and Cleanup:

The Contractor shall be responsible for sweeping and cleaning of the streets 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 turnouts, cul-de-sacs, etc., must be cleaned of any material to the satisfaction of the Engineer.

Description of work

This work shall consist of controlling and maintaining traffic on rejuvenation application projects during the Contractor's operations in the roadway and of providing personnel and equipment for this purpose in accordance with these specifications and as the Public Works Department may require. The work shall include controlling access to the work zone from intersecting roads and adjoining property as may be prudent to ensure the safety of workers and the public and to protect the work and other property. Other traffic-related services may be required in the plans or elsewhere in the Contract.

Traffic plan and authorization

Prior to the start of work, the Contractor shall present a traffic plan to the Public Works Department for approval. In no case shall the Contractor place traffic control devices in the right-of-way, conduct rejuvenation application operations, or otherwise disrupt the normal flow of traffic without properly notifying the Public Works Department and receiving authorization.

Basis of payment

Payment for the work shall be made at the contract prices or lump sum listed in the Bid Sheet. The contract prices shall be full payment for the work, including all incidental labor and materials necessary for completion of the work and not included in other pay items. Quantities of items to be paid on a unit price basis shall be as called for by the Public Works Department or prescribed in the traffic plan and as measured by the Public Works Inspector.

Unsatisfactory performance:

Substantial omissions or failure by the Contractor in providing the services specified herein shall be cause to immediately shut down the pavement preservation operation until the discrepancy or discrepancies have been corrected. The agency shall not be liable for any loss the Contractor

may incur for mobilization or wasted materials or for any other loss arising from the cessation of work.

Environmental Stewardship:

All seals, rejuvenators, and asphalt preservation agents shall be free of harmful materials which will damage the environment during its application, and after it has been applied and is in use. The manufacturer shall certify that their product{s} used to stabilize and preserve the asphalt road surface shall not leach in the presence of moisture, rain, fog, or snow, and shall not contribute toxins or pollute the ground water runoff after its application. In case of a spill all products shall not harm or otherwise adversely affect the local flora adjacent to the road surface.

Health Safety:

With concern for the general health, the MSDS sheet Health section shall assure that the carcinogenicity potential is None.