DETAILED APPLICATION SPECIFICATION

STAR MICRO-PAVE AVIATOR

SEALCOATING FOR AIRPORT PROJECTS

1.0 Objectives:

This specification covers the application of STAR MICRO-PAVE AVIATOR, is a p*remium grade* rubberized protective sealcoating system, especially designed for airport asphalt pavements.

1.1 To extend the service life of asphalt pavements by sealing out:
- The sun's ultraviolet rays, which result in oxidative decomposition,
- Deteriorating effects of deicing salts, water and subsequent damage to the sub-base caused by water penetration.

1.2 To beautify and enhance the appearance.
1.3 To reduce the maintenance costs and extend the service life.
1.4 To fill minor surface imperfections and yield an even looking surface.
1.5 To provide a limited degree of skid resistance.

2.0 Materials:

2.0 **STAR MICRO-PAVE AVIATOR,** Asphalt/clay Emulsion Based Sealcoating.

2.1.1 Meets and or exceeds the requirements of the following specifications.

Constants/Property	Min.	Max	Method	Micro-Pave	Status
Weight/Gallon (lb.)	9.0	-	ASTM D244	9.25 Min.	Passes
% Non-Volatile	47	53	ASTM D2939	49-51	Passes
% Non-Volatile Soluble in carbon disulfide	20	-	ASTM D2939	-	Passes
% Ash of Non-Volatile	30	40	ASTM D293	34-35	Passes
Drying Time, hrs.	-	8	ASTM D2939	1-4	Passes
Resistance to water	No penetration or loss of adhesion			OK	Passes
Flexibility	No cracking or flaking			OK	Passes
Resistance to impact	No chipping, cracking or flaking			OK	Passes
Well film continuity	Smooth, non-granular, free from coarse particles			OK	Passes
Cured Film color & Viscosity	Black 75 Ku.	-	ASTM D562	OK	Passes
Wet track Abrasion	-	35 gm..	ASTM 3910	OK	Passes
Accelerated Weathering	No deterioration		FED. SPEC.-TT-C-555B	OK	Passes

2.1.3 The material shall be homogeneous and show no separation or coagulation components that can not be re dispersed with moderate stirring.

2.1.4 The material shall be suitable for application and complete coverage, by brush or by approved mechanical methods, to the bituminous surface at a spreading rate of 0.18 - 0.20 gal. (based on the amount of STAR MICRO-PAVE AVIATOR Concentrated) per square yard in a two (2) coat application system.

2.1 **Sand / Aggregate Specifications:** Sand shall be clean hard and irregular silica sand, free of clay, dust, salt, and organic matter. It must meet the following gradation.

U.S. Sieve Size		Percentage Retained	
		Minimum	**Maximum**
No. 20 or coarser	(0.850 mm)	0	0
No. 30	(0.600 mm)	0	5
No. 40	(0.425 mm)	7	25
No. 50	(0.300 mm)	15	50
No. 70	(0.212 mm)	20	40
No. 100	(0.150 mm)	3	30
No. 140	(0.106 mm)	0	10
No. 200	(0.075 mm)	0	7
Finer than No. 200		0	3

2.2 **Water** shall be clean and potable, free of harmful soluble salts, within a temperature range of 50-80 º F.

2.3 **Additive** – None required. Acrylonitrile/butadiene latex rubber (meeting airport specifications) is hot-blended during the manufacturing process.

2.4 **Crack Fillers:** Must be certified by the supplier for compatibility with the sealcoating material. Cold pour crack fillers, ***STAR STA-FLEX*****,** or a hot- pour rubberized crack fillers are recommended.

2.4 **Primers;**

2.6.1 **Oil Spot Primers:** Must be certified by the Sealcoat manufacturer for compatibility with the sealcoating material. ***STAR S.O.S. Primer/Sealer*** is recommended.

2.6.2 **Pavement Primer:** Must be certified by the Sealcoat manufacturer for compatibility with the sealcoating material.

2.6.3 **Specialty Coatings/Primers** may be recommended by the manufacturer for problematic areas, e.g. rust streaks in the pavement, excessive surface contamination with oil, grease, fat etc. ***STAR ONE STEP,*** pre-diluted with water (in 1:2 volume ratio; product: water) is recommended. It is also recommended for fresh laid asphalt patches and polished aggregates.

3.0 Surface Preparation:

The pavement surface to be sealcoated must be sound and surface cured to achieve the optimum performance. Sound pavements are those that;

- Have oil free surface (for additional notes-see under new pavements).
- Are compacted proper over the base and sub-base courses and suitable for the desired traffic loads and
- Are well drained and stable.

3.1 **New Asphalt Pavement Surfaces**: Cure new asphalt pavement surfaces so that there is no concentration of oils on the surfaces. A period of at least 90 days at +70 º F daytime temperature must elapse between the placement of a hot-mixed asphalt pavement and the application of STAR MICRO-PAVE AVIATOR. Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. Cast one gallon of clean water over the surface to be tested. If the water sheets out uniformly, without crawling or showing oil rings, the pavement is suitable for sealcoating.

3.2 Old and **or badly oxidized asphalt pavement** shall be primed with a primer coat, prior to sealcoating. **Prime coat -** The suggested materials are;

a. STAR MICRO-PAVE AVIATOR, diluted with clean potable water in 1:3 volume ratio (sealer: water) applied at 0.04 to 0.06 Gal.(undiluted sealer)/ Square yard.
b. STAR ONE STEP, diluted with clean potable water in 1:2 volume ratio (STAR ONE STEP: Water), applied at 0.05-0.08 gal. (mixed)/ Square Yard.

3.2 **Clean the surface thoroughly to remove all foreign debris** (dirt, gravel, silt, etc.) using air blowers or by flushing with water. Embedded dirt and silt shall be removed with steel bristle hand brooms.

3.3 **Treat all grease and oil spots** by scraping off the excess oil and dirt with a wire bristle broom and coat with **STAR OIL SPOT PRIMER (S.O.S.)** in accordance with directions. **STAR ONE STEP** is recommended for areas contaminated extensively with oil, grease fuel etc.

3.4 **Make all necessary repairs,** patch soft spots, and fill all cracks and holes in the pavement. All patched areas must be cured before applying **STAR MICRO-PAVE AVIATOR.**

4.0 Materials and Recommendations:

4.1 Materials Calculations:

STAR MICRO-PAVE AVIATOR- For a standard two (2) coat sealcoating system, calculate at the rate of 0.18-0.20 gallons of undiluted sealer per square yard of the asphalt surface to be sealcoated.

Ist. coat requires- 0.10-0.12 gal./square yard,
IInd. Coat requires- 0.08-0.10 gal./square yard.
Other Ingredients (water, sand/aggregates, etc.)-see section 4.2.

4.2 Recommended Systems:

COMPOSITION OF MIXTURE, Using STAR MICRO-PAVE AVIATOR

Sealcoat Type	STAR MICRO-PAVE AVIATOR	WATER	AGGREGATE	APPLICATION OF THE MIX.
	GALLONS	GALLONS	LBS.	GAL/SQ.YARD
RUBBERIZED SAND SLURRY	100	20 max.	300-800	0.14-0.17
RUBBERIZED EMULSION	100	20 max.	None	0.10-0.12

4.4 Sand Slurry Preparation

- Add the required amount of water to the sealer in the mixing tank and mix thoroughly.
- Keep the mixer running at a moderate rate.
- Add the sand in a steady stream of about one 100 lb. bag per minute. When adding sand, be sure of firm footing and never place hands and arms in the agitating mixer.
- After adding all the sand, close the lid of the mixing tank and raise the speed of the mixer to “high” setting.
- Mix for 10 minutes to allow the contents of the tank to mix thoroughly and break any sand clumps.
- Reduce the agitator speed to moderate setting and keep running. If the mixer is shut off during transport to the job site, it must be restarted and the contents mixed for at least 10 minutes before the application begins. Keep it running during the entire application period.

5.0 Application of Material:

5.1 The material shall be applied according to the specifications detailed in Section 4. These systems provide a protective coating that is free of voids, pinholes, and holidays.

5.2 The first coat, **STAR MICRO-PAVE AVIATOR** sand slurry, shall be uniformly applied over the entire surface. If the surface temperature is more than 90 º F, pre-dampen with a light mist. Avoid puddles. There should be no free standing water. Do not apply if the ambient and surface temperatures are min. 50 º F and rising.

5.3 Allow the first coat to dry sufficiently to take light traffic without scuffing. It will take about 4-6 hours under ideal drying conditions. If the specification calls for a second coat, apply it perpendicular to the previous coat, if practical.
5.4 The completed application shall be allowed to cure at least for 24 hours and then tested for traffic-ability prior to opening for regular use.
5.6 The amount of material needed will vary according to the porosity and texture of the pavement, therefore, use mix designs (section 4) for guidelines only.

6.0 Method of Application

6.1 Squeegee/ Brush (Hand Application) method:

6.1.1. The agitator in the sealer tank should be kept on to keep the material in suspension at all times. The machine should be equipped with a fog bar to be used for pre-dampening if the pavement temperature exceeds 90 º F.
6.1.2. Coat the edges first. Pour a continuous ribbon of the **STAR MICRO-PAVE AVIATOR** along the pavement edge 6-12 inches from curbing.
6.1.3 Draw the **STAR MICRO-PAVE AVIATOR** mix away from the pavement edge by pulling a squeegee or brush perpendicular through the ribbon of material at a slight angle. Walk parallel to the pavement edge. Repeat the process in reverse direction pulling the excess material toward the center of the pavement. For best results use a squeegee followed by a brush. Pour more **STAR MICRO-PAVE AVIATOR** mix to maintain a working ribbon of material and continue across the pavement until it is completely covered.

6.2 Machine Application:

6.2.1. When applying by machine, seal the edges of the pavement by hand. The machine should then be used to apply **STAR MICRO-PAVE AVIATOR** mix to the remaining area. A self-propelled machine that squeegees and brushes the sealer into the pores of the pavement is recommended.
6.2.2. Spray application should deposit the material according to specified coverage rates.

7.0 Striping: If striping is required, use STAR-BRITE Latex Traffic Paint (TT-P-1952b) or STAR BRITE PLUS, Fast Drying-100% Acrylic Traffic Paint or STAR PERMAILNE, Oil-based Traffic Paint . Allow the seal coat to dry at least 24 hours before striping.

8.0 Precautions:

8.1 STAR MICRO-PAVE AVIATOR must be protected from freezing. Do no store at temperatures below32 º F. Do not apply **STAR MICRO-PAVE AVIATOR** during rainy or foggy weather**. Ground and air temperature must be 50 º F and rising prior to and after application.**
8.2 Drying is retarded by excessive moisture in the air or ground. Examples: rain, fog, prolonged humidity and seasonal extremes (early spring - late fall). Under such conditions, allow additional time for initial drying and cure
8.3 Follow the recommended coverage rates. IF **STAR MICRO-PAVE AVIATOR** is applied too heavy, the surface will dry first and restrict the water evaporation from the rest of the film, slowing down full curing process.
8.4 Use good sealcoating practices for personal hygiene and safety. Avoid breathing vapors and wear protective clothing and eye protection. See the Material Safety Data Sheet for **STAR MICRO-PAVE AVIATOR** for details.
8.5 Keep out of reach of children.