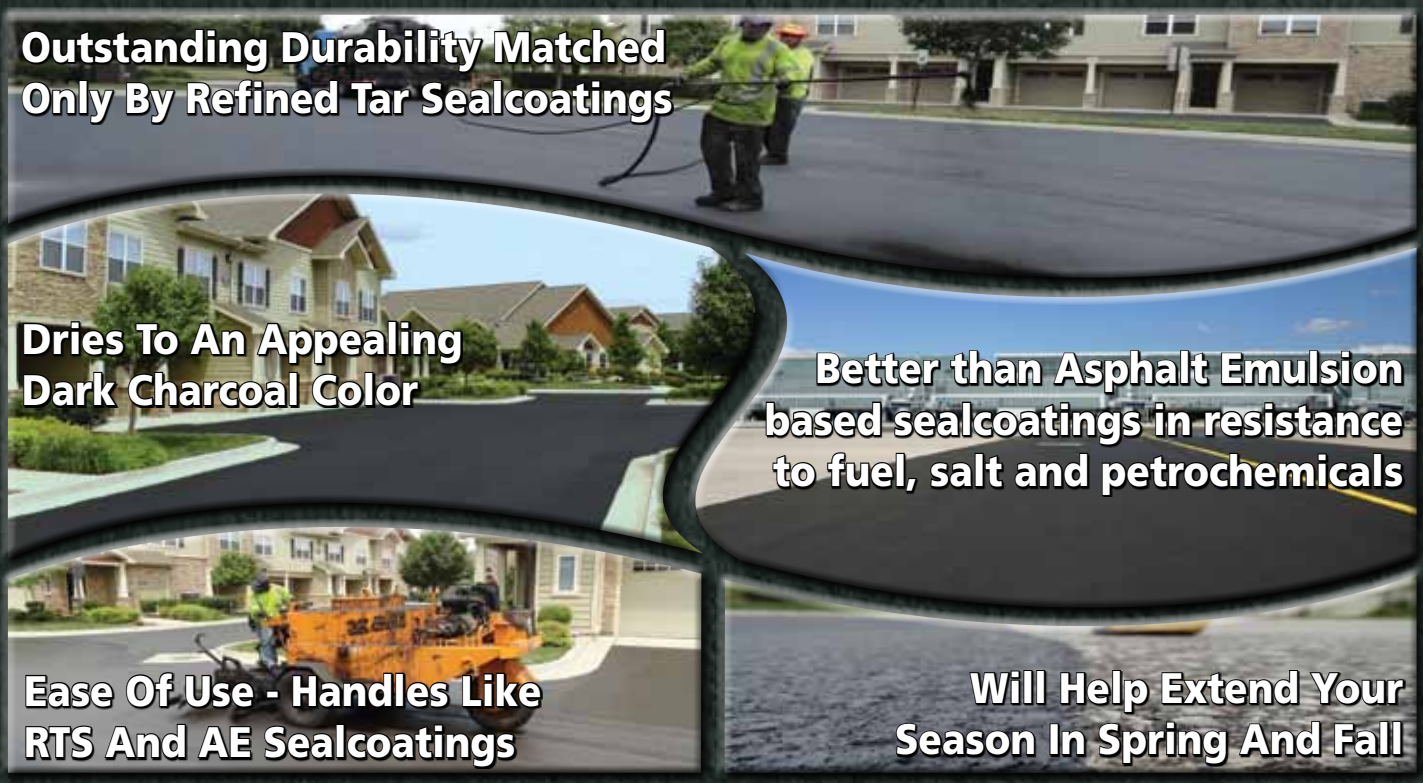
STAR TRITON

NEXT GENERATION ASPHALT PAVEMENT SEALER

FLEXIBILITY
DURABILITY
LONGEVITY



STAR INNOVATION THAT OUTPERFORMS OTHER SEALERS

STAR-TRITON® Will Perform To The Standards You Have Come To Expect And Trust From STAR® Branded Products!

Get The *Sealcoating Contractors Resource* App Today!

STAR-SEAL

Google play | App Store

LONESTAR SEALCOAT & SUPPLY, INC.

14041 Chrisman Rd. ▲ Houston, TX 77039

281-442-0050

www.lonestarsealcoat.com

STAR-TRITON
NEXT GENERATION ASPHALT PAVEMENT SEALER

Functionally Meets and or Exceeds ASTM and FAA Specifications.

Detailed Application Specifications

1.0 OBJECTIVE

1.1 This specification covers the application of the STAR-TRITON® sealcoating system for existing, sound asphalt pavements.

1.1.1 STAR-TRITON® is used to extend the service life of asphalt pavements by providing protection from elements that attack and degrade those pavements:
a) The sun's ultraviolet rays, which result in oxidative decomposition.
b) Deteriorating effects of de-icing salts, oils, gasoline, and grease.
c) Water and subsequent damage to the sub-base caused by water penetration through porosity, cracks and surface defects.

1.2 STAR-TRITON® will beautify and enhance the appearance of asphalt.

1.3 STAR-TRITON® will reduce maintenance costs and extend service life.

1.4 STAR-TRITON® will fill minor surface imperfections and yield an even looking surface coating.

1.5 STAR-TRITON® will provide a limited degree of skid resistance.

2.0 MATERIALS

2.1 Specialty Petroleum Resin Emulsion (Mineral Colloid Type). *STAR-TRITON® functionally meets and or exceeds the requirements as detailed below.*

2.1.1 For composition and performance properties, STAR-TRITON® meets or exceeds ASTM 5727-00 (formerly Federal specification RP-355e), when tested in accordance with D 2939-98.

2.1.2 STAR-TRITON® meets and or exceed the performance requirements of applicable FAA specifications namely FAA P-630 and P-631.

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 squeegee, brush or by approved mechanical methods, to the bituminous surface at a spreading rate of approximately 0.18 - 0.20 gallon (of the concentrated sealer) per square yard in a two (2) coat application system.

2.2 Physical Properties and Constants According to ASTM D5727-00

PROPERTIES & CONSTANTS	TEST METHOD	SPECIFIED LIMITS	STAR-TRITON	STATUS
Solids, % By Weight	ASTM D5727-00	Min. 47-53%	**50% (+/-) 1**	Passes
Ash % NVM (Solids) By Weight	ASTM D5727-00	30-40%	**37% (+/-) 1**	Passes
Specific Gravity 25/25° C	ASTM D5727-00	Min. 1.2	**1.22 - 1.24**	Passes
Drying Time, Hrs.	ASTM D5727-00	Max. 8 Hrs.	**Approx. 4 Hrs.**	Passes
Appearance, Wet	-	-	Dk Brown/Semi Liquid	-
Appearance, Upon Drying	-	-	Dark Slate Black	-

2.3 Sand / Aggregate Specifications

2.3.1 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

**50/70 U.S. Sieve Size is recommended for STAR-TRITON®*

2.4 Water Specifications

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

2.5 Additives Specifications

2.5.1 Follow manufacturer's recommendation for selection, and mix design, for specific project requirements.

2.5.2 WARNING: Using other additives or additives manufactured by companies other than STAR, Inc. in conjunction with this product might produce undesirable results. Consult your STAR representative for recommendations.

2.6 Crack Filler Specifications

2.6.1 Any crack filler/sealer must be certified by the supplier for compatibility with the sealcoating material. Cold pour crack fillers manufactured by STAR® such as STAR® STA-FLEX™, STAR® STA-FLEX TROWEL GRADE™ and STAR® SURE-FLEX™ are recommended. Hot pour rubberized crack fillers such as STAR® ELASTO-BOND™ may also be used successfully.

2.7 Primer Specifications

2.7.1 Oil spot primers must be certified by the sealcoat manufacturer for compatibility with the sealcoating material. STAR® S.O.S. Sealer™ oil spot primer/sealer is compatible and recommended.

2.7.2 Specialty coatings/primers may be recommended by the manufacturer for problematic areas such as rust streaks in the pavement, excessive surface contamination with oil, grease, fat, tree sap etc., areas of highly polished aggregate due to high traffic use, or in areas that might require extra attention due to high traffic use. In these cases; STAR® RUST-ARREST™ and STAR® GENESIS PRIME™ are recommended products and are also useful for promoting adhesion on fresh asphalt installations.

3.0 SURFACE PREPARATION

3.1 Important: STAR-TRITON® must be applied to structurally sound pavements. Do not apply over chip seal or gilsonite sealed surfaces.

3.1.1 New asphalt pavement surfaces must have time to properly cure so that there is no concentration of oils on the surface. A period of 90 days at 70° F+ daytime temperatures must elapse between the placement of the hot-mixed asphaltic concrete surface course and the application of the sealcoating. Check the suitability of the asphalt pavement by performing a "water-break-free" test; Cast one gallon of potable water onto the surface, the water should sheet out without crawling, beading or showing oil rings confirming that the surface oils have oxidized and dissipated.

3.1.2 The surface must be cleaned thoroughly to remove all foreign debris (dirt, gravel, silt, vegetation, etc.) using air blowers or by flushing with water. Embedded dirt and silt will need to be removed with steel bristle hand brooms or with the careful use of pressure washers.

3.1.3 Mudded areas need to be thoroughly scraped and carefully pressure washed with clean water. Time must be allowed for the surface to dry.

3.1.4 Treat all grease and oil spots by scraping off the excess oil and dirt with a wire bristle broom and coat with STAR® S.O.S. SEALER™ oil spot primer/sealer in accordance with directions. STAR® GENESIS PRIME™ is recommended for areas contaminated extensively with oil, grease, fuel, tree saps etc. or areas with highly polished aggregate surfaces that can create challenging adhesion situations for sealcoatings.

3.1.5 Make all necessary pavement repairs; patch soft spots, fill and seal all cracks, properly patch pot holes and level any "bird baths". All patched areas must be cured before applying STAR-TRITON®.

3.1.6 Treat old or badly oxidized asphalt pavement with a primer coat of diluted STAR-TRITON® as one (1) part by volume thoroughly mixed with three (3) parts of clean water. Apply the primer at 0.04 to 0.06 gallon per square yard or 0.18-0.27 liter per square meter (concentrated sealer). Allow the primer coat to dry thoroughly, about 2-4 hours under normal drying conditions, prior to sealcoating with STAR-TRITON®.

4.0 MATERIAL USE RECOMMENDATIONS

4.1 Material Calculations

4.1.1 For a standard two (2) coat sealcoating system, calculate at the rate of 0.18-0.20 gallons per square yard (0.81-0.90 liter/sq. meter) of concentrated sealer on the asphalt surface to be sealcoated.
First Coat Requires: 0.10-0.12 gal./sq. yard, (0.45-0.54 liter/sq. meter)
Second Coat Requires: 0.08-0.10 gal./sq. yard, (0.36-0.45 liter/sq. meter)

4.1.2 For the quantities of other ingredients, water, sand/aggregates, additives such as Star Macro-Flex® see section 4.2.0 "Recommended Systems".

4.2 Recommended Systems

INTENDED USAGE AREA	No. of COATS	STAR-TRITON Gallon / Liter Concentrate	WATER Gallon / Liter Clean/Potable	SAND Lb. / Kg. 50/70 Sieve	ADDITIVE (i.e. Macro-Flex®) Gallon / Liter	COVERAGE RATE (Mixed Sealer) Gal/sq yd / Lt/sq mtr
LOW TRAFFIC AREAS:						
Home Driveways, Parking Stalls	1st.	100 / 100	25-35 / 25-35	200-300 / 24-36	0-3 / 0-3	.15-.20 / .68-.90
Walkways, Cart and Bicycle Paths, etc.	2nd.	100 / 100	25-40 / 25-40	0- 300 / 0-36	0-3 / 0-3	.10-.15 / .45-.68
MODERATE TRAFFIC AREAS:						
Parking Lots, Highway Shoulders	1st.	100 / 100	25-45 / 25-45	300-500 / 36-60	0-4 / 0-4	.15-.20 / .68-.90
Driveways, Gas Stations, Airfield Aprons.	2nd.	100 / 100	30-50 / 30-50	0-500 / 0-60	0-4 / 0-4	.10-.15/.45-.68
HEAVY TRAFFIC AREAS:						
Industrial & Commercial Parking Lots,	1st.	100 / 100	25-55 / 25-55	400-600 / 48-72	0-5 / 0-5	.15-.20 / .68-.90
Airfield Taxiways, Service Stations.	2nd.	100 / 100	25-55 / 25-55	400-600 / 48-72	0-5 / 0-5	.15-.20 / .68-.90
Ring Roads or Steep Grades, etc.	3rd.	100 / 100	30-40 / 30-40	0-500 / 0-60	0-4 / 0-4	.10-.15 / .45-.68

4.3 Priming Prior To Sealcoating

4.3.1 Prime Coat - For old, oxidized pavements, a primer coat is recommended. The suggested materials are;

a) STAR-TRITON® diluted with clean potable water in 1:3 volume ratio (sealer:water) applied at 0.04 to 0.06 gallons per square yard, 0.18-0.27 liter per square meter (of the concentrated sealer).

b) STAR® GENESIS PRIME™ diluted with clean potable water in 1:2 volume ratio (GENESIS:water) applied at 0.05-0.08 gallons per square yard, 0.23-36 liter per square meter of the mixture.

4.4 Sand Slurry Preparation / Addition Of Sand To The Mix Design

4.4.1 Before the addition of sand/aggregate, add the required amount of water and additives to the sealer in the mixing tank and mix thoroughly.

4.4.2 SAND SLURRY PREPARATION

4.4.3 Keep the mixer running at a moderate rate.

4.4.4 Add the sand in a steady stream of about one 100 lb. bag per minute.

4.4.5 When adding sand, be sure you have firm footing and never place hands and arms in the agitating mixer. Always wear proper protective gear; gloves, eye protection, long sleeves and a breathing mask or respirator.

4.4.6 After adding all the sand, close the lid of the mixing tank and raise the speed of the mixer to "high" setting.

4.4.7 Agitate tank for 10 minutes to allow the contents of the tank to mix thoroughly and break up any sand clumps.

4.4.8 Reduce the agitator speed to "medium" 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 the agitation running during the entire application period.

4.4.9 **IMPORTANT:** The sieve (mesh) size of the sand has an important correlation to the thickness of the cured sealer film. Using a sand that is either too coarse or too fine will not produce the desired results of durability, traction, uniformity of the cured film and if too large can "roll out" of the sealer under traffic. STAR-TRITON® is specified to be used with a 50/70 U.S. Sieve size sand gradation for best results.

5.0 APPLICATION OF MATERIAL

5.1 Recommended As A Multi-Coat System Installation

5.1.1 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 (skips).

5.1.2 **The First Coat**; The STAR-TRITON® sand slurry shall be uniformly applied over the entire surface according to the recommended coverage rate. If the surface temperature is more than 90° F, pre-dampen with a light mist avoiding the creation of puddles of water. There should be no free standing water on the surface when applying the sealer.

5.1.3 Allow the first coat to dry sufficiently to take light traffic without scuffing. It could take approximately 4-6 hours under ideal drying conditions.

5.1.4 **The Second Coat;** If the specification calls for a second coat, apply it in a perpendicular direction to the previous coat, if practical to ensure the profile of the asphalt surface is evenly coated on all possible sides.

5.1.5 The completed application will need to be allowed to cure at least for 24 hours and then tested for traffic suitability prior to opening for regular use.

5.1.6 The amount of material needed will vary according to the porosity and texture of the pavement. The mix designs (i.e. STAR-TRITON® and other ingredients) expressed in section 4.2.0 are guidelines only.

6.0 METHOD OF APPLICATION

6.1 Hand Tool Application Using Squeegee Or Sealcoaters Brush

6.1.1 **Mixing Tank Details**; The agitator in the sealer tank should be kept on at all times during application to keep the sealer mix design in proper suspension.

6.1.2 **Cut In / Edging**; Apply a coating around the edges of the pavement first by pouring a continuous ribbon of STAR-TRITON® mix along the pavement edge approximately 6-12 inches from curbing/pavement edge. Draw the STAR-TRITON® mix away from the pavement edge by pulling a squeegee or brush through the ribbon of material at a slight angle while walking 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.

6.1.3 **Sealer Application**; Pour more STAR-TRITON® mix to maintain a working ribbon of material and continue across the pavement until it is completely and uniformly covered. Continue the process in reverse direction pulling the excess material toward the intended end point of the pavement. For best results use a squeegee followed by a brush.

6.2 Machine Squeegee Application / Self Propelled Driven Unit

6.2.1 When applying by machine, first seal the edges of the pavement by hand as described in 6.1.2. The machine should then be used to apply STAR-TRITON® mix to the remaining larger pavement area. A self-propelled machine that squeegees and brushes the sealer into the pores of the pavement is recommended. The machine should be equipped with a fog bar to be used for pre-dampening if the pavement temperature exceeds 90° F.

6.2.2 Care should be taken to ensure that the proper coverage rate is maintained, and frequent quality control checks should be made to confirm that the proper amount of sealer is being applied. Too much or too little sealer on the surface can cause complications in the proper cure out, lead to tire tracking and ultimately reduced durability/longevity of the finished sealcoating system.

6.3 Spray Application By Self Propelled Driven Unit Or By Hand (Wand)

6.3.1 Mechanical Considerations; If using a traditional diaphragm pump to deliver the sealer to the spray bar, an approximate pressure starting point should be at about 40-80psi. Start out with a lower psi setting and adjust as needed after a test patch is made. In most cases an 80/40 or 80/50 spray tip can be used. Note: the size of the spray tip and the amount of pressure is related, changing one will likely require an adjustment to the other. Spray tips should always be kept clean and free of dried sealer. Store spray tips in a sealed container of water to keep them clear.

6.3.2 HAND SPRAY APPLICATION WITH WAND; Spray application should deposit the material per specified coverage rates. When material is being sprayed the sealcoating spray pattern should be slightly angled (10-20°) and a back-and-forth fanning motion used. As you make each pass from right to left and then back left to right, tilt the angle of the spray in opposite directions so as to apply an even coating on all sides of the pavement profile. As you advance across the pavement you should overlap your application by 1/3 to 1/2 onto the previously applied row/area.

6.3.3 SPRAY APPLICATION WITH DRIVEN MACHINE; Spray application should deposit the material per specified coverage rates. Care should be taken to ensure that the proper coverage rate is maintained, and frequent quality control checks should be made to confirm that the proper amount of sealer is being applied. Too much or too little sealer on the surface can cause complications in the proper cure out, lead to tire tracking and ultimately reduced durability/longevity of the finished sealcoating system.

7.0 STRIPING

7.1 Traffic Marking Paint / Lot Striping

7.1.1 If striping is required, use STAR-BRITE® Latex Traffic Paint (TT-P-1952B) or STAR-BRITE PLUS®, Fast Drying 100% Acrylic Traffic Paint (TT-P-1952D,E). Allow the seal coat to dry at least 24 hours before striping. Refer to the paint manufacturers Technical Data Sheet for details.

8.0 PRECAUTIONS

8.1 Storage and Temperature

8.1.1 STAR-TRITON® must be protected from freezing. Do no store at temperatures below 32° F. Always store unused sealer in tightly closed containers.

8.2 Application and Temperature

8.2.1 Do not apply STAR-TRITON® during rainy or foggy weather. Ground and air temperature must be 50° F and rising prior to and after application.

8.2.2 Drying is retarded by low temperatures and excessive moisture in the air or on the ground. Examples: rain, fog, prolonged humidity and seasonal extremes (early Spring and late Fall). Under such conditions, the use of STAR® branded additives is recommended to obtain optimum and uniform drying. If STAR-TRITON® is applied too heavy, the coating will form a film on the very top of the surface and this film will restrict the water evaporation from the rest of the coating slowing down the full curing process.

8.3 Personal Protection and Safety

8.3.1 STAR-TRITON® is based on specialty Petroleum Resins which are non-irritating, non-burning and have only a faint odor. Still use all precautions as detailed in the Safety Data Sheets for personal and environmental protection. Always wear full protective clothing and gear when handling STAR-TRITON®.

8.3.2 Keep out of reach of children.

MANUFACTURED BY:

LONESTAR SEALCOAT & SUPPLY, INC.

14041 Chrisman Road, Houston, TX 77039

Tel: 281-442-0050 • www.lonestarsealcoat.com

STAR-TRITON

NEXT GENERATION ASPHALT PAVEMENT SEALER

Functionally Meets and or Exceeds ASTM and FAA Specifications.

GENERAL DESCRIPTION

STAR-TRITON® is part of a new generation of pavement sealcoatings that are high performance, effective alternatives, to both refined tar and asphalt emulsion sealers. STAR-TRITON® will perform to the standards you have come to expect from the entire family of STAR sealcoatings. STAR's formulations use only the highest quality raw materials and STAR-TRITON® is based on carefully selected grades of petroleum resins, minerals, specialty additives and performance boosters, STAR-TRITON® has an extraordinary degree of toughness and water repellency, unmatched by any competitive sealer. STAR-TRITON® forms a tough, durable and flexible coating that protects asphalt pavements from the damaging elements of weather, water penetration, de-icing salts, traffic damage, surface raveling/checking, gasoline and other petrochemical contaminations.

OUTSTANDING PROPERTIES

- Comparable to Refined Tar Sealers in toughness, overall durability and application procedure, STAR-TRITON® will perform to the standards you have come to expect and trust from STAR® branded products.
- Better than Asphalt Emulsion based sealcoatings in resistance to fuel, salt and petrochemicals STAR-TRITON® gives you more options.
- The color stability of STAR-TRITON® is comparable to Refined Tar Sealers, unlike Asphalt Emulsions, which has a tendency to fade with aging.
- STAR-TRITON® will help you expand your season in early spring and late fall significantly longer than Asphalt Emulsion sealers.
- STAR-TRITON® is water-based, easy to apply, handle and store. Non-burning, non-irritating and with no significant odor.
- Beautifies while It protects – STAR-TRITON® dries to an appealing dark charcoal color that enhances the value of the property.

RECOMMENDED USES

STAR-TRITON® is recommended for all asphalt pavements; home driveways, commercial parking lots, apartment complexes, restaurants, schools, gas stations, truck terminals, airfields/taxiways/airport shoulders, and many more.

MIX DESIGN RECOMMENDATIONS

Important - All mix designs must include clean, quartz, angular sand.

	US	METRIC
STAR-TRITON®	**100 Gal.**	**100 Liters**
Water (Clean, Potable)	**25-30 Gal.**	**25-30 Liters**
Sand/Aggregate 50-70 AFS*	**300-500 Lbs.**	**36-60 Kg.**

***** Crushed slag (i.e. Black Beauty) may be used as the aggregate, provided it is clean, angular and within 50-70 AFS gradation.

The use of an additive is optional, follow STAR's recommendations.

APPLICATION RATES

Must be applied to structurally sound pavements. Do not apply over chip seal or gilsonite sealed surfaces. The application rates shall be dictated by the traffic pattern and usage.

1 ***For Low to Medium Traffic Areas Apply Two (2) Coats:***

a) **Concentrated Sealer** - the total coverage rate of 0.18 - 0.20 Gal./Sq. Yd. or 45 - 50 Sq. Ft./Gal. (1.1 - 1.22 Sq. Meter/Liter).

b) **Mixed Sealer** - 0.27 - 0.30 Gal./Sq. Yd. or 30 - 33 Sq. Ft./Gal. (0.73 - 0.81 Sq. Meter/Liter).

2 ***For High Traffic Areas Apply Three (3) Coats:***

a) **Concentrated Sealer** - the total coverage rate of 0.25 - 0.28 Gal./Sq. Yd. or 32 - 36 Sq. Ft./Gal. (0.8 - 0.9 Sq. Meter/Liter).

b) **Mixed Sealer** - 0.38 - 0.42 Gal./Sq. Yd. or 21 - 24 Sq. Ft./Gal. (0.51 - 0.59 Sq. Meter/Liter).

IMPORTANT WEATHER LIMITATIONS

- Surface and air temperature should be a min. 50° F (10° C) and rising.
- Do not apply on rainy, foggy, or extremely humid days, or when rain is in the forecast within 24 hours.
- If the pavement temperature is over 100° (38°C) dampen the pavement with a fine mist of water to facilitate even spreading. Do not allow water to puddle on the surface.

APPLICATION TOOLS

- Use conventional tools; Brush, rubber squeegee or spray rig.
- Clean up with Water. Do not discard washings in the bodies of water or down sewer drains.
- Dried sealer on tools - Wire brushing, scarping and peeling.
- Keep stored containers sealed tightly.

CURING TIME

Cure time will vary according to temperature and humidity at the time of application. Insufficiently cured films wear prematurely. Lower temperatures, high humidity and lack of direct sunlight will prolong the cure time. Higher temperatures, lower humidity and direct sunlight accelerate the cure process. If a second coat is to be applied, allow the first coat to dry sufficiently to withstand light vehicular and pedestrian traffic without damaging or scuffing the coating. After the application of the last coat, allow the coating to cure at least 20-24 hours under good drying conditions.

SPECIAL INSTRUCTIONS

Apply only on unsealed asphalt or surfaces previously sealed with either Asphalt Emulsion or Refined Tar based sealers. Do not apply over surfaces sealed with gilsonite and other solvent based seal coatings. New asphalt pavements must be allowed to cure at least 90 days in hot weather. Perform a water break free test to confirm that the surface oils have dissipated, by spreading water on the pavement. If the water does not bead, pavement is ready for seal-coating. Not recommended for steeply inclined surfaces, as they may become slippery when wet.

CAUTIONS

KEEP FROM FREEZING / KEEP OUT OF REACH OF CHILDREN

Wear gloves and protective clothing. In case of contact, flush skin or eyes immediately with fresh water. If the product gets in the mouth or eyes see a physician immediately. Consult a Safety Data Sheet for details.

PACKAGING & AVAILABILITY

5-Gallon plastic pails, 55-gallon drums & 275-gallon plastic totes, and bulk at all STAR plant locations.

STAR SPECIALTY TECHNOLOGY AND RESEARCH

WORLD-WIDE HEADQUARTERS
1150 Milepost Drive, Columbus, OH 43228
+1-800-759-1912 • www.starseal.com