



SEALCOATING

PRINCIPLES & PRACTICES

*FOR THE PROTECTION & PRESERVATION
OF ASPHALT SURFACES*

PART II-APPLICATION

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President, STAR, INC.
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SEALCOATING APPLICATION

Sequence, Steps, Procedure & Precautions

SEQUENCE

- Area inspection, Measurement and cost calculation of Materials, Overheads, % Profits.
- Bid Competitively, Recalculate to capture all costs.
- Develop Execution Plan- Crews, Tools & Supplies
- Mobilize-Personnel, Equipment, Materials.
 - Pavement surface preparation- Trimming, Cleaning, repairs, patching, priming, etc.
 - Sealcoating Application,
 - Block Off Sealcoated Area,
 - Open as agreed.
- Demobilize Equipment, clean and remove all debris and leave a sign.
- Collect payment as agreed.



SEALCOATING ESSENTIALS

Materials, Equipment, Procedures & Precautions

MATERIALS

SEALCOATINGS: Good Quality, with proven performance track record. Shall meet all applicable specifications.

WATER: Clean, Potable.

SAND: Clean, Quarts, Angular, 50-70 Mesh.
No Clay, Dirt or debris.

ADDITIVES: As Recommended by the manufacturer or the project engineer.



SEALCOATING APPLICATION

Please Follow Sealer Manufacturers instructions on:

MIX DESIGN- Proportions of Sealer, Water, Sand and Additives.

PAVEMENT PREPARATION- Cleaning, Spot Priming, Patching and Crack filling, Patching.

APPLICATION RATES- Coverage Rates.

PRECAUTIONS- Application, Handling and Storage. **Must read the Safety Data Sheet.**

 **PRODUCT BULLETIN**


ASPHALT PAVEMENT SEALER

DESCRIPTION
STAR-SEAL is a heavy-duty coal tar sealer that is specifically designed to protect and beautifully bluminous pavements. Composed of high temperature refined coal tar pitch, selected mineral fillers and surfactants, STAR-SEAL forms a tough, durable and flexible coating that protects asphalt pavements from the damaging elements of weather, water, salts, gas and other petrochemicals. STAR-SEAL provides an attractive, easy-to-clean, like-new surface.

CHARACTERISTICS
Asphalt is easily attacked and degraded by the sun's ultraviolet rays. The degradation process of asphalt begins as soon as the new pavement is installed and the surface oils decompose and dissipate. The process continues to attack asphalt in the deeper layers of the pavement. As a result, the aggregates break loose and cracks develop.
Water penetrates through the cracks and damages the pavement in subsequent freeze-thaw cycles. "Accumulation of moisture in the pavement structure is probably the greatest single cause of pavement distress" according to the Asphalt Institute.
Oil, gasoline, grease and automobile fluids soften asphalt giving rise to soft patches and holes in the pavement. The logical solution for the protection of asphalt surfaces is the use of a barrier coat that will not be attacked by the damaging elements of weather and chemicals. Refined Coal Tar Pitch, composed of saturated closed-ring polynuclear molecules, meets such criteria, and therefore it is used in the form of a clay emulsion for the protection and beautification of asphalt surfaces.
STAR-SEAL, a refined coal tar pitch emulsion sealer, seals out the damaging elements of weather and chemicals and keeps the vital oils and plasticizers locked in the pavement to keep them flexible and functional.

RECOMMENDED USES
On all asphalt surfaces, subject to moderate to heavy traffic and / or frequent abuse by harsh chemicals, gasoline, oil, grease, etc. Such as Airports, Runways and Taxiways, Commercial and Industrial Parking Lots, Fast-Food Restaurants, Gas Stations, Recreational Areas, Residential Driveways.

PHYSICAL PROPERTIES AND CONSTANTS

PROPERTIES & CONSTANTS	STAR-SEAL	RP-355e SPEC.
Solids, % by weight	50 (+/-) 3	47-53
Ash, % of Solids by wt.	37 (+/-) 3	30-40
Solubility of Non-Volatiles in Carbon Disulfide	30 (+/-) 05	20 min.
Specific Gravity 25/25 C	1.22 (+/-) 02	1.2 min.
Drying Time, hrs.	7 D	8.0 max.
Appearance, wet	Dr. Brown, semi-liquid	-
Color upon drying	State Black	-

SPECIFICATIONS AND STANDARDS
STAR-SEAL meets and/or exceeds...
Federal Government Specifications RP-355e (GSA FSS), June 19, 1987
U.S. Air Force and F.A.A. State Specifications using coal tar emulsions for government projects and bridge decks, American Society for Testing and Materials (ASTM) D-3320-74T and D-490, COKE oven tar specification.
APPLICATION
STAR-SEAL must be applied to structurally sound pavements by experienced applicators. Asphalt pavement should be protected by two coats of STAR-SEAL, however, the quantities and coverage rates must conform to manufacturer's detailed specifications. Average coverage rates are 0.18 to 2.0 undiluted gallons per square yard. STAR MACRO-FLEX, latex additive and silica sand may be added for increased traction and durability.


SPECIALTY TECHNOLOGY AND RESEARCH
www.starsteel.com

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Minneapolis, MN 55421
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SPECIALTY TECHNOLOGY AND RESEARCH

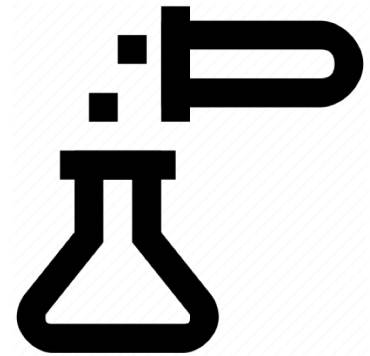
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SEALCOATING MIX DESIGN

SEALER IS GENERALLY SUPPLIED AS A CONCENTRATE.

Prior to application, It is mixed with:

-  Water
-  Sand/Aggregate
-  Additive



In specified proportions, called a Mix Design,

Important to note

The quantities are denoted as % of **Concentrated** Sealer,
With sealer being 100%.

Manufacturers recommend a specific mix design for a given job.

SEALCOATING APPLICATION- MATERIALS



Water

Achieves proper fluidity

Use Clean, Potable and Free of salt and low in Iron content.

Expressed as % of sealer



Sand/Aggregates

Adds traction & appearance,

Fills/bridges hair line surface cracks,

Use Clean, angular, quartz sand, 50-70 mesh, free of clay, dirt, debris.

Expressed as lbs./Gallon of sealer



Additives

Fast/Uniform drying

Sand suspension and anchoring

Improves chemical and UV resistance.

Use as recommended.

Expressed as % of sealer



SEALCOATING APPLICATION

A TYPICAL MIX DESIGN

- | | |
|----------------------------|-------------|
| 1. Sealer (RTS) | 100 Gals. |
| 2. Water (25-30% dilution) | 25-30 gals. |
| 3. Sand (2-3 lbs./gal) | 200-300 lb. |
| 4. Additive (2-5%) | 2-5 gal. |



*Sealer is always used as the base @ 100.
Quantities of water, sand and additives
Calculated as % of sealer @ 100*



Mixing has to be thorough.

Hand Mixing may not be enough.

Improper mixing –Poor Performance.



SEALCOATING APPLICATION- MATERIALS

COVERAGE RATES

Definition ~ Expressed in 2 ways

1. Gallons of conc. Sealer needed cover One (1) sq. yard.
2. Square feet covered by One (1) gal of conc. Sealer.

Commonly Expressed as Gallon/sq. Yard.



Standard Coverage Rates

Commonly calculated for two (2) coats of sealer

- ✓ 1st Coat applied @ 0.10-0.12 gal. conc. Sealer/sq. yd.
- ✓ 2nd Coat, applied @ 0.08-0.10 gal. conc. sealer/sq. yd.

✓ Total of two (2) coats = 0.18-0.20 gal. Of conc. Sealer /sq. yd.

JOB CALCULATIONS

1. Calculate the area **Assume 10,000 sq. yd.**
2. Calculate total undiluted sealer needed
@ 0.18 to 0.20 gals. Per sq. yd



Application/ Coverage rate	Conc. Sealer		
	Rate Gal/Sq. Yd	Total Sq. yards	Total Conc. Gals.
1 st . Coat	0.12	10000	1200
2 nd . Coat	0.08	10000	800
Total for 2 coat	0.20	10000	2000

JOB CALCULATIONS

Mixture From Conc. Sealer



u21266601 fotosearch.com

Application	Mix Design			Total	Mixed Sealer
	Conc. Sealer	Water @ 30%	Sand, 3lb.	Mixture	Factor
	Gal	Gal	Lbs. (Gal)	Gals.	MSF
1 st . Coat	1200	360	3600 (166)	1726	1.44
2 nd . Coat	800	240	2300 (111)	1151	1.44
Total for 2 coat	2000	600	6000 (277)	2877	1.44

Mixed Sealer Factor (MSF)

Ratio between mixture and the conc. Sealer

Conc. Coverage Rates Shall be multiplied with MSF

SEALCOATING APPLICATION

Sequence, Steps, Procedure & Precautions

STEPS IN APPLICATION

1. PAVEMENT PREPARATION

1.1. CLEAN

REMOVE GRASS, WEEDS, AND DIRT
USING BRUSH, BROOM, BLOWER, POWER WASHING.

1.2 REPAIR

CRACK FILL WITH:

- COLD POUR FOR CRACKS UPTO ½ INCH WIDE
- HOT POUR CRACK FILLER FOR LARGER CRACKS.

PATCH & OVERLAY THE PROBLEM AREA- BADLY ALLIGATORING, BASE PROBLEMS. ALLOW THE FRESH ASPHALT TO CURE.

1.2 OIL SPOTS

SCRAPE HEAVY BUILD UPS. WASH WITH DETERGENT, AND SEAL WITH OIL SPOT PROMERS. SOFT AREAS-PATCH.



Sealcoating will not fix the pavement problems.

Pavement must be sound, free of defects prior to sealcoating.

SEALCOATINGS ARE SURFACE PROTECTIVE TREATMENTS, NOT REPAIR PRODUCTS.

SEALCOATING APPLICATION

Sequence, Steps, Procedure & Precautions

STEPS IN APPLICATION

2. SEALCOATING APPLICATION

2.1. MATERIAL PREPARATION FOR THE JOB:

- USE SUGGESTED MATERIALS AND MIX DESIGN FOR THE JOB.
- HAVE THE RIGHT MIXING EQUIPMENT WITH MECHANICAL AGITATION
- KEEP MATERIAL AGITATED DURING APPLICATION
- MAKE SURE THAT SAND STAYS IN SUSPENSION.
- MAKE SURE APPLICATION EQUIPMENT (PUMPS, NOZZLES, TIPS, WAND, ETC. ARE IN GOOD WORKING CONDITION.



SEALCOATING APPLICATION

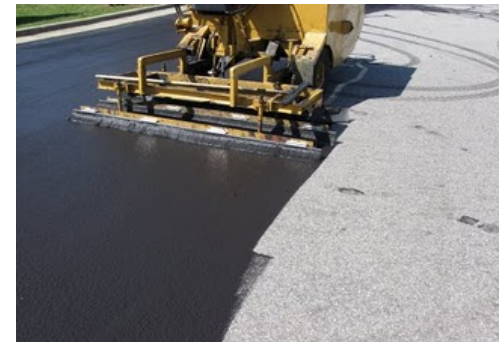
Sequence, Steps, Procedure & Precautions

STEPS IN APPLICATION

2. SEALCOATING APPLICATION

2.2. APPLICATION



- TRIM THE EDGES WITH A SQUEEGEE OR A BRUSH
- APPLY THE SEALER ON A SMALL PRE-MEASURED AREA TO SET CORRECT APPLICATION RATE.
- APPLY THE SEALER IN LARGER AREAS USING A SUITABLE METHOD- SPRAY, BURSH OR SQUEEGEE. KEEP MATERIAL AGIATETD DUING APPLICATION
- MAKE SURE THAT SAND STAYS IN SUSPENSION.
- APPLY THE NO. OF REQUIREID NUMBER OF COATS
- FOR 2 COATS OR MORE, ALLOW EACH COAT TO DRY SIFFICIENTLY BEFORE APPLYING THE FOLLOWING COAT.
- FINAL COAT- MUST ALLOW TO DRY MIN 24 HRS. BEFORE OPENIG THE LOT FOR TRAIIFC.



SEALER APPLICATION MEHODS BRUSH SQUEEGEE OR SPRAY?

Comparison aspects	SPRAY	SQUEEGEE
Investment	Considerable	Economical to considerable.
Cost Controls. Material usage.	Controllable , Better Control of Material Usage	Un-controllable, material usage will depend upon the surface roughness and age.
Skill Level	Highly Skilled work. Thorough training required	Moderate skill. Not much training is needed.
Size of Projects	Medium to large	Small, medium, large
Appearance of the finished job	Excellent, Uniform Textured appearance.	Fair-to good, May appear streaky
Safety in handling	Good, Material is under pressure, may accidently discharge due to equipment malfunction.	V. Safe

SEALER APPLICATION MEHODS BRUSH SQUEEGEE OR SPRAY?

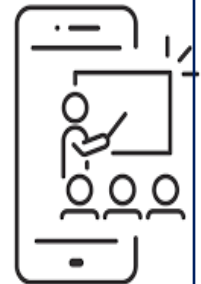
Comparison aspects	SPRAY	SQUEEGEE
Investment	Considerable	Economical
Uniformity of the coating application	Uniform on the surface as well as in the profile of the pavement.	Thick in the profile and wipes the top of the aggregates in the pavement.
Conclusions	Mechanical application for both types are well accepted and have yielded years of dependable performance. le	The main drawback is the cost control of the material usage
Best compromise	Brush application of the first coat and spray application of the second coat.	
		

Now You Know About Sealcoating Application

- ☐ Mix designs and Material calculation.
- ☐ Application details
- ☐ Application tools.

There is still a lot to learn about sealcoatings, for doing a professional job, that will earn loyalty from your customers.

*Please see the next presentation in part III for
Special Notes, and
Frequently Asked Questions.*





Thanks for watching this presentation.

**For questions, comments or suggestions,
Please contact your local STAR PLANT
professionals or Contact**



**800-759-1912
www.starseal.com**