

SEALER ADDITIVES



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SEALER ADDITIVES

1. WHAT ARE ADDITIVES?

- Definition
- Types

2. WHAT THEY DO & HOW THEY IMPROVE THE SEALER PERFORMANCE?

Applicable FAA Specifications.

3. WHAT THEY DO NOT DO?

1. Additives impart the desired properties
2. Do not compensate For Poor Performance caused by Excessive Amount of;

- Over-dilution with Water or
- Sand -Excessive loads.



SEALER ADDITIVES

Definition

Materials Added to the sealer
to accomplish the

Desired Properties

- ☐ Longevity/Durability
- ☐ Fast drying,
- ☐ Thickening
- ☐ Color Enhancement
- ☐ Over-diluting to make pail products



SEALER ADDITIVES

1. IMPROVED PROPERTIES

- Flexibility and elongation
- Toughness,
- Water resistance
- Resistance to chemicals, de-icing salts, oils, fats, grease, etc.



2. FAST DRYING:

Even under not-so-ideal weather conditions., e.g. early spring, late fall.

3. UNIFORM DRY COLOR: Under shade or shine.

4. THICKENING:

- To accommodate large amounts of water
- Sand or Aggregate Suspension.
- No balling or streaking of the sealer.



SEALER ADDITIVES

For Performance Boosting

Additives have been used
for the last 40 years.

***FAA Engr. Briefs have specified
A/B (Acrylonitrile/butadiene) rubber
latex based additives for Refined
Tar Sealers (RTS), since late 60's.***



SEALER ADDITIVES

For Performance Boosting

**A/B (Acrylonitrile/Butadiene) rubber latex
for Refined Tar Sealers (RTS)**

1. REDUCE TEMPERATURE SUSCEPTIBILITY

Reduce Softening and Tackiness in summer
& improve cold temp. flexibility.

2. INCREASE FLEXIBILITY, & TOUGHNESS

Greater resistance to abrasion, scour and wear. Better
retention of aggregate.

3. IMPROVED SAND & AGGREGATE RETENTION/SUPENSION,

Better anchoring of aggregates
Uniform textured appearance.



SEALER ADDITIVES

For Performance Boosting

A/B (Acrylonitrile/Butadiene) rubber latex
for Refined Tar Sealers (RTS)

4. IMPROVED RESISTANCE TO:

Jet fuel, Chemicals, water, & de-icing salt.

5. THICKENING- DUE TO THE pH CHANGE.

6. IMPROVED SAND RETENTION/SUPENSION,

Better anchoring of aggregates

Uniform textured appearance.

7. FAST DRYING-

Even under not-so-ideal weather conditions.

8. UNIFORM DRIED COLOR- Under shade or shine



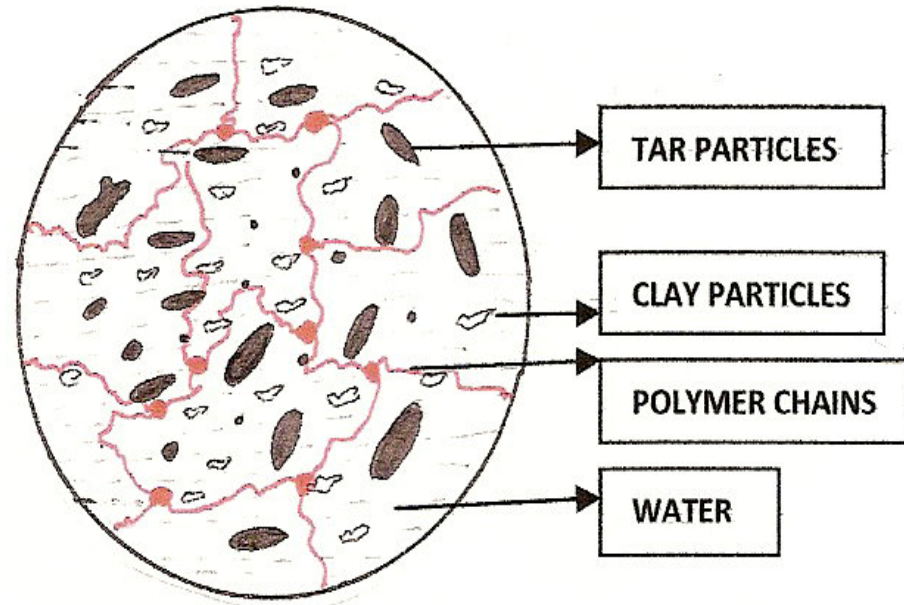
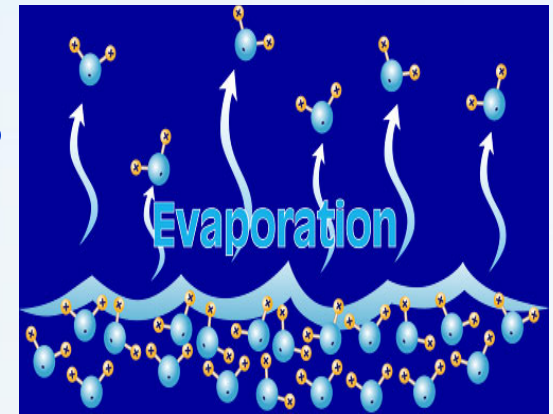
SEALER ADDITIVES

How do Additives Generally Work?

As the sealcoating dries

❑ Polymer network tightens within the film, it forces water out at a uniform rate, producing uniform dry color.

- ❑ Polymer particles fuse into The Refined Tar (or asphalt) particles, Thus improving the Properties of the cured film;
- FLEXIBILITY, TOUGHNESS
 - FUEL & CHEMICAL RESISTANCE.
 - SAND SUSPENSION AND ANCHORING
 - FAST DRYING.



SEALER ADDITIVES

The Polymer must be resistant to:

Must be resistant to:

- Weathering
- Gasoline, oils, fats
- De-icing Salts
- Petrochemicals and other Chemicals.
- Other chemicals



Any weakness in the polymer (additive) will introduce weak links in the sealer and may cause its premature failure.

SEALER ADDITIVES

Majority Polymeric Additives

- Produce Thickening,
- Speed up Drying Time,
- Produce Uniform Dry Color,
- Help to Suspend Aggregates.

But they differ in their abilities to:

- Reinforce the properties like,
Flexibility, Toughness, Temperature Susceptibility etc.
- Improve resistance to
Chemicals, oils, fats, grease, de-icing salts, aromatic fuels etc.



SEALER ADDITIVES

→ The Right Additive Used in the right Proportion will:

- Reinforce the properties,
- Improve the overall performance

BUT WILL NOT OVERCOME

Mix design deficiencies caused by the excessive amounts of:

- Water- thinner dry films
- Sand/Aggregate- Will soak up excessive amount binder.
 - Not enough to bond to the surface or form a good film.
 - Too brittle, may peel.



SEALER ADDITIVES

Conclusions

1, Acrylonitrile/Butadiene (A/B) polymers

Have the best overall properties.

They reinforce and boost the properties of asphalt and Refined Tar Sealers.

- Better resistance to oils and other petrochemicals than styrene butadiene polymers.
- The rest of the properties are similar.

2. Polyvinyl Acetate/acrylic co-polymers

(PVAs) are not recommended due to poor water and alkali resistance. May introduce weak spots in the film when attacked by water. They do thicken the sealer and speed up drying.



STAR SEALER ADDITIVES

STAR MACRO-FLEX Rubberizing Additive for Sealcoatings



It Boosts The Performance Sealers.

- Longer lasting, increased toughness & durability.
- Provides faster & more uniform drying to a charcoal black color.
- Thickens most sealers. Suspend large amounts of sand without settling. Will hold (anchor) sand in dried sealer film and reduce sand roll out.
- Improved resistance fuels, salts, gas, oils, etc.
- Reduces tack at higher temperatures and improves flexibility at colder temperatures.

STAR SEALER ADDITIVES

STAR MACRO-FLEX

Rubberizing Additive
for Sealcoatings

Recommended Uses

- Commercial & Industrial Parking Lots
- Low to medium traffic streets
- Fast Food Restaurants
- Airports, Gas Stations
- Home Driveways
- FAA projects



STAR SEALER ADDITIVES

STAR MACRO-FLEX

Rubberizing Additive for Sealcoatings



Level of additions- 2-5% (volume) of the conc. Sealer.

The amount depends upon:

- The amount of water in the mix.
- Sand loading (lbs. of sand per gallon of sealer)

Specifications: FAA, Engr. Brief-46a, for RTS.

A/B Latex specified by name, others can be used if they meet all performance criterion.

STAR SEALER ADDITIVES

STAR MICRO-LOCK

Rubberizing

Additive for
Asphalt Emulsion (AE) Sealcoatings



Recommended Uses

- Commercial & Industrial Parking Lots
- Low to medium traffic streets
- Fast Food Restaurants
- Gas Stations
- Home Driveways
- Airport Projects
- Schools, Play Area.

LEVEL OF ADDITION

2-5% (by volume of the conc. Sealer) depending upon
a. The amount of water in the mix.
b. Sand loading (lbs. of sand per gallon of sealer)



HIGH-POTENCY SPECIALTY ADDITIVE

FOR REFINED TAR & ASPHALT EMULSION-BASED

SEALCOATINGS

4- IN- 1 ADDITIVE

- **Speeds Up Drying**
- **Makes sealer last longer**
- **Sealer dries & stays blacker.**
- **Thickens sealer, for high sand loadings.**

**Level of addition Gallons
1-2 % by vol. on Sealer**





HIGH-POTENCY SPECIALTY ADDITIVE

FOR REFINED TAR & ASPHALT EMULSION-BASED

RECOMMENDED USES

For all pavements types of low to medium traffic asphalt pavements and surfaces subject to attack by de-icing salts, chemicals, gasoline, oil, etc.

- ❖ Commercial & Industrial Parking Lots
- ❖ Fast-Food Restaurants
- ❖ Gas Stations

Especially Suited for Night- Time Sealcoating



STAR MAX-DRI

Ultra Premium Fast Drying Additive



TRIPLE ACTION ADDITIVE FOR SEALCOATINGS BASED ON ASPHALT & COAL TAR

- **FAST DRYING-** Reduces drying time by 75%
- **THICKENING-**
 - a. Uniform sand suspension-Non-settling.
 - b. Allows higher dilution rates.
- **PERFORMANCE BOOSTER-**
Improves the overall longevity/durability of the sealer.



STAR MAX-DRI

Ultra Premium Fast Drying Additive



TRIPLE ACTION ADDITIVE FOR SEALCOATINGS BASED ON ASPHALT & COAL TAR

LEVEL OF ADDITION

2-5% (volume) on the Sealer gals.

Pre-Dilution

None. Add directly, with mixer on.

Drying Time:

Approx. 30 mins. Will depend upon ambient weather conditions, i.e. temperature, relative humidity (R.H.), and wind velocity.



STAR MACRO-FAST

**Rapid Drying Additive For
sealcoatings: Both RTS and ASPHALT**

Cuts drying Time in 1/2



A specialty latex polymer additive

STAR MACRO-FAST

Rapid Drying Additive

For Both RTS and ASPHALT (AE) Sealcoatings

BENEFITS

- Speeds up drying (drying time reduced by 50% min.) reducing labor costs.
- Uniform color (charcoal black) under sun or shade.
- Does not thicken the sealer. No need to add more water.
- Hardens the sealer surface, reduces power steering and scuff marks.
- Provides improved resistance to fuels, salts, gas, oils, etc.
- Reduces tack at higher temperatures and improves flexibility at colder temperatures.
- Water based, safe to handle, and store.
- Non toxic, non hazardous ingredients.



STAR MACRO-FAST

**Rapid Drying Additive For
sealcoatings: Both RTS and ASPHALT**

Recommended Uses

- Apartments & Office Complexes
- Commercial & Industrial Parking Lots
- Low traffic streets
- Fast food restaurants.
- Service plazas
- Home driveways

LEVEL OF ADDITION

2-5% (by volume of the conc. Sealer) depending upon

- The amount of water in the mix.
- Sand loading (lbs. of sand per gallon of sealer)



STAR MACRO-THIX

*High Potency Thickener,
Acrylic, water-based*

Level of additions:

0.33- 1.0 %, on total mix.

- **THICKENS MANY PRODUCTS:**
Refined tar sealers, Asphalt Emulsion based Sealers, Traffic Paints, cold Pour Crack Fillers,
- **OUTSTANDING VISCOSITY BUILD**
- **EXCELLENT SAND SUSPENSION**
- **VERY USEFUL FOR MAKING**
Ready-To-Use, Pail Products.

Notes:

1. STAR MACRO-THIX must be mixed with water , (equal vol.), before addition.
2. Water shall be added to Macro-Thix not vice-versa.



ADDITIVES CROSS REFERENCE **From Various Suppliers**

FOR REFINED TAR SEALERS (RTS)

MACRO-FLEX

Improved sealer properties resulting in increased durability, faster drying and thickening to suspend higher sand loads.

Acrylonitrile/butadiene-specialty
polymer, specified by FAA.
Level of addition: 2-5% by vol.

Tarmax

Southern Emulsions

Tar Gel+ (?)

Maintenance, Inc.

Poly+ Plus

Neyra



ADDITIVES CROSS REFERENCE **From Various Suppliers**

FOR ASPHALT EMULSION SEALERS (AE) AND BLENDS

MICRO-LOCK

Improved sealer properties resulting in increased durability, faster drying and thickening to suspend higher sand loads.

Acrylonitrile/butadiene-specialty polymer, specified by FAA.
Level of addition: 2-5% by vol.

FSA-AE
Maintenance, Inc.

MAXUM
Neyra



ADDITIVES CROSS REFERENCE

From Various Suppliers

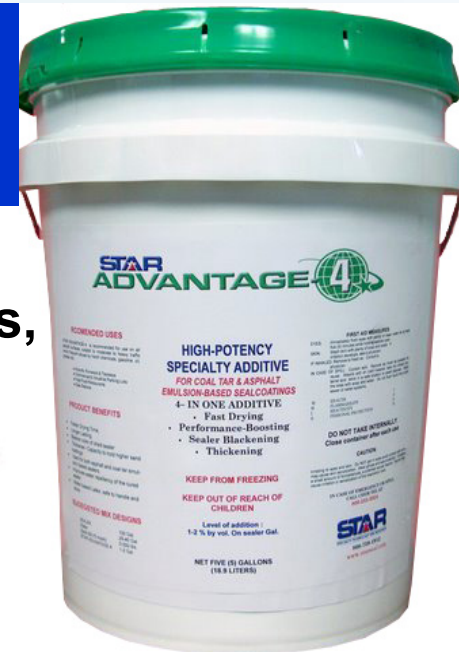
FOR ASPHALT EMULSION SEALERS (AE) AND BLENDS



**100% Acrylic Polymer, Specialty Chemicals and
Blackening Pigments**

Level Of addition: 1-2% by vol.

BLACK ELIXIR: Allstates Coatings,
Diamond shield (??)
Top-Tuff- SealMaster
FASS DRI: Maintenance, Inc.
FAS+: Maintenance, Inc.



ADDITIVES CROSS REFERENCE From Various Suppliers

FOR ALL SEALCOATINGS AND BLENDS

MAX-DRI **TRIPLE ACTION ADDITIVE**



100% Acrylic Polymer based

Level 0f addition: 2-5% by vol.

ARMOR-FLEX- Neyra
FSA+: Maintenance, Inc.



ADDITIVES CROSS REFERENCE **From Various Suppliers**

STAR MACRO-FAST

RAPID DRYING, NON-THICKENING

FOR ALL SEALCOATINGS AND BLENDS



Based on specialty polymers and chemicals.

Level of Addition; 2-5% by Vol.

FSA
Maintenance, Inc.

QSA
Neyra

ADDITIVES CROSS REFERENCE

From Various Suppliers

MACRO-THIX

High Efficiency Thickening Additive
for high sand loadings, for pail products

Specialty Thickener-Acrylic base
Level of additon 0.5-1%

Tar Gel+ (?) - Maintenance, Inc.
Sealmaster **VM**



ADDITIVES CROSS REFERENCE

From Various Suppliers

Additive Properties Comparison

Properties	STAR, Inc. Advantage-4	Maintenance, Inc. FSA	Maintenance, Inc. FSA+	Maintenance, Inc. TAR GEL PLUS	Sealmaster TOP-TUFF	Sealmaster VM	Diamond Shield Fortifier
Fast Drying	✓	✓	✓	✓			✓
Performance Boosting	✓			✓	✓		✓
Thickening	✓		✓	✓		✓	✓
Blackening	✓						
Surface Hardening	✓		✓		✓		
Tire Marking/Scuff Resistance	✓				✓		✓
Flow/Leveling	✓						✓
Smoother, Uniform Application	✓						✓





THANK YOU

