



# ***CONCRETE PRODUCTS***

***STAR MACRO-DECK***

***STAR GENESIS***

***STAR SPECTRUM***

***America's Most Trusted***

***Sealcoating Additives and Pavement Protection Products***



# **STAR MACRO DECK**

DOT Formulation For Bridge Decks

**DEVELOPED TO SEAL AND PROTECT  
BRIDGE DECKS AND OTHER  
CONCRETE SURFACES.**



**MACRO-DECK<sup>®</sup>**

# What Destroys Concrete?

Effects of:  
**WATER**  
**DE-ICING CHEMICALS**  
**SALT**  
**WEATHER**

**= DAMAGE =**

**SPALLING, CRACKING, CRUMBLING**  
**CORRODED REBAR**



**STAR**  
SPECIALTY TECHNOLOGY AND RESEARCH

## MACRO-DECK®

**PROTECTION FOR:**  
Concrete Bridge Decks, Control  
Barriers and Superstructures

**Penetrating Concrete Saturant**  
*Developed to protect concrete structures  
by creating a rubberized matrix inside  
the physical structure of the concrete.*

**Durable & Reliable**  
*Improves the tensile and flexural strength  
of concrete. Protects an average of three  
years with prescribed application.*

**Proven Protection**  
*Studied and proven to prevent damage  
from water and de-icing salts. Is DOT  
approved in many states.*

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1150 Milepost Road • Columbus, OH 43229  
**800-759-1912**  
[www.starseal.com](http://www.starseal.com)

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# How Can Concrete Be Protected?

**STOP WATER AND  
SALT PERMIATION**

**REDUCE SURFACE  
AND REBAR DAMAGE**



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# What is Macro-Deck

IT IS A SPECIALTY PENETRATING SEALER  
WATER-THIN CONSISTENCY, BASED ON  
SPECIALTY POLYMERS AND CHEMICALS.

- 100% acrylic polymer.
- Penetrates concrete up to a full inch.
- Forms a rubbery polymer matrix in the concrete.
- Dramatically reduces the penetration of chlorides and other destructive chemicals.
- Seals map cracks.
- DOT tested and approved.



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# Major Advantages

- Shields And Protects Against Damaging Elements of Weather.
- Improves Flexural & Tensile Strength.
- Will Not Alter The Skid Resistance.
- Will Not Discolor.
- Will Fill And Seal Minor (Hairline) Cracks.
- Easy To Apply; Low Pressure Spray Is The Best Method.
- Water Based Product - Safe To Handle And Store.
- **Non-hazardous, Non-flammable, Non-polluting**

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# Recommended Uses

- On various types of concrete surfaces,
- Concrete bridge decks, support structures, guard walls.
- Median dividers, curbs.
- Grain elevators.
- Sanitary sewer.
- Masonry walls and floors.
- Airport taxiways and aprons.



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# Application and Storage

- Safe, non-flammable, water-based product
- Easy to store and apply
- Applies quickly with common spraying equipment
- Dries in 45 minutes



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# Macro Deck Application Project

**FESTUS HORINE RD. BRIDGE,  
HERCULANEUM, MISSOURI USA**

- **Date** - August 23, 2003
- **Hosted by:** STAR, Inc. in collaboration with Festus Special Road Group.



**MACRO-DECK<sup>®</sup>**

# Application Equipment

## Equipment for application

- Spray equipment, with 1.25 inch diaphragm pump.
- Macro Deck was pulled from a 55 gallon fiber drum.
- Spray tip 80/20 is preferable.



**MACRO-DECK<sup>®</sup>**

# Surface Preparation

## Preparation prior to application

- Bridge Cleaning- none. The entire surface appeared Sufficiently clean.



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# Spray Application Details

## Conditions:

- Wind - 6.9 MPH.
- Uniform pattern was achieved with best pump pressure range set between 35 - 50 PSI.

## Coverage:

- Surface was adequately infiltrated. Some overlapping was required in certain areas. This provided additional protection around traffic lines and in areas of heavier traffic.



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# Special Application Observations

- Pattern emerged as Macro Deck was penetrating into the surface profile of the concrete.
- This pattern was consistent with the metal framework in the bridge deck structure.
- Heat transfer to the surface is clearly demonstrated here. Concrete and steel transfer heat at different rates during the drying process.



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# Spray Application Observations

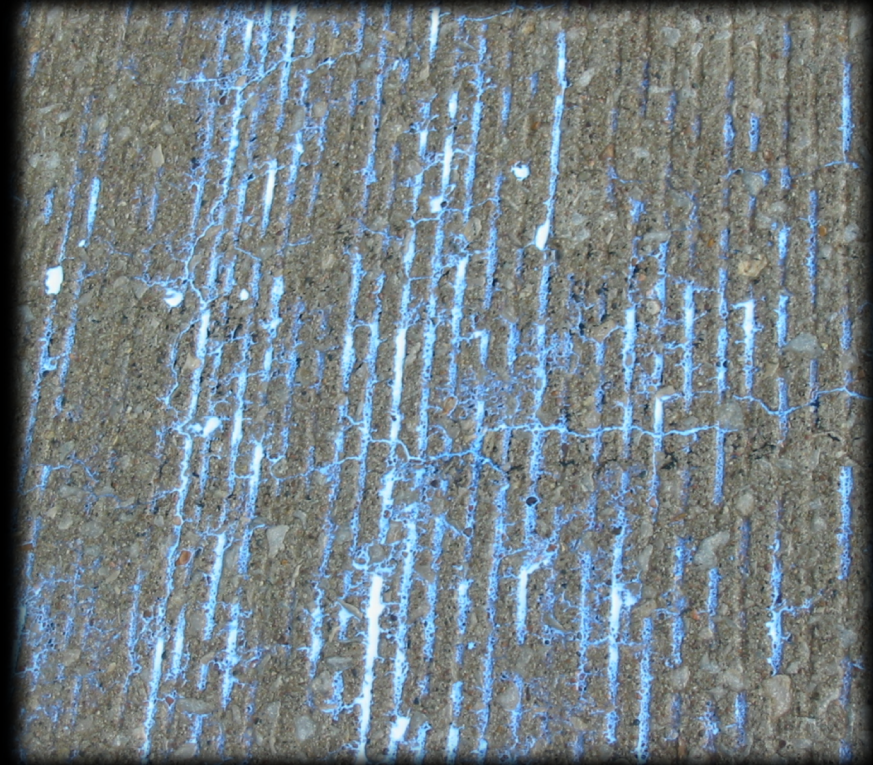
- The photograph was taken prior to the application of Macro Deck.
- Although the surface appears corrugated, small cracks were not visible to the eye.
- Surface cracks allow water penetration and degrades and weakens the overall strength of the bridge structure over time.



**MACRO-DECK<sup>®</sup>**

# Spray Application Observations

- Macro Deck is demonstrating in the photograph how it fills, penetrates and seals very fine cracks in the concrete surface. This will further preserve the concrete from chloride and salt penetration. Reduces metal erosion of the deck structure.
- Minimizes the effects of trapped moisture during freeze thaw cycles, preserves the surface from further damage.
- These small cracks were virtually invisible to the eye prior to application.



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# Application Time

- **A. East Section of the bridge**
- Start 10:00 a.m.
- Finish - 10:15 a.m.
- Dry for traffic - 10:45 a.m. (30 min.)
- Pressure - 40 - 60 psi
- Spraying - Pressure appeared high, somewhat excessive atomization. The pressure was reduced for the application on the west side.



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# Application Time

- **B. West Section of the bridge.**
- Start - 11:00 a.m.
- Finish - 11:15 a.m.
- Dry for traffic - 11:45 a.m. (30 min.)
- Pressure - 30 - 50 psi
- Spraying - Excellent coverage and uniformity.
- The photo demonstrates a motorist using the bridge only 30 minutes after product application.



**MACRO-DECK®**

# STAR GENESIS



*water based, 100% acrylic polymer coating that is fortified with specialty chemicals that will promote adhesion to problematic areas in both asphalt and concrete pavements.*



# STAR GENESIS

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## OUTSTANDING FEATURES:

- will aggressively adhere to concrete surfaces and act like a sealcoating by itself or as a primer so that sealcoating appears uniform across all surfaces on a properly with both concrete and asphalt pavements.
- will effectively stop, or greatly reduce, tile and carpet staining which is sometimes caused by tracking sealcoatings by foot into stores and businesses.
- Is easy to use straight from the container. Minimal on-the-job mixing.
- Dries to rich black satin finish in 30 minutes, Cures in 2 to 4 hours.



# STAR GENESIS

# STAR GENESIS



## RECOMMENDED USES

Excellent where concrete and asphalt are used together and a uniform appearance is desired, for example; drive through lanes or gas station fueling pads.

## COVERAGE RATE

125 - 150 SQ. FT/GALLON

CLEAN UP WITH WATER.



# STAR GENESIS

# ***STAR SPECTRUM***



***A Bright New Product That Protects, Beautifies And  
Extends The Life Of Your Asphalt Pavement.***



# STAR SPECTRUM

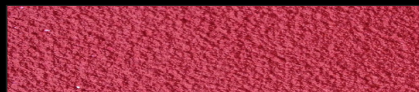
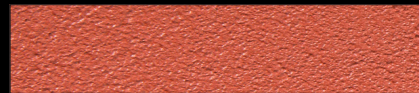
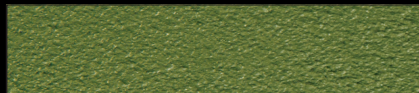
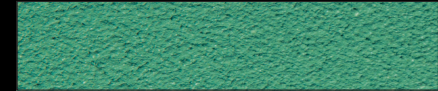
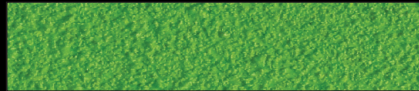
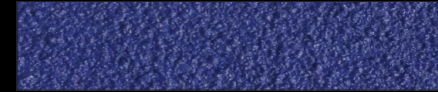
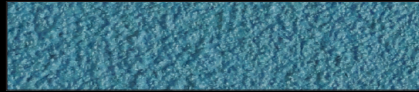
Excellent Durability – STAR SPECTRUM® has been proven as a viable alternative to many traditional pavement coating products. Effective on both asphalt pavement and concrete surfaces.



Non-Hazardous in Application, Handling and Storage. Safe for playgrounds and use where human contact is unavoidable. Easy to apply, clean up and store



# ***STAR SPECTRUM***



# ***STAR SPECTRUM***

## ***MIX DESIGN RECOMMENDATIONS***

	US	METRIC
STAR SPECTRUM®	100 Gal.	100 Liters
Water (Clean, Potable)	5 Gal.	5 Liters
Sand/Aggregate 50-70 AFS*	300-500 Lbs.	36-60 Kg.

**Important** - Crushed slag (i.e. Black Beauty) should not be used.

## **AVERAGE APPLICATION RATES**

Concentrated Sealer - coverage rate of 0.09 - 0.10 Gal./Sq. Yd.  
or 90 - 100 Sq. Ft./Gal. (2.2 - 2.45 Sq. Meter/Liter).



# Questions?

**Thank You for  
your time for watching this  
presentation.**

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