



**Lab & Field Test Results
and Product Application**
SDS BIONIC WORLDWIDE

C O N F I D E N T I A L
D O C U M E N T

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TABLE OF CONTENTS

SDS BIONIC METAL COAT

Standard Test Results	3
1 Month Electrolysis and Corrosion Test	4
3 Minute Combustibility Flame Test	9
Large Truck Rim Cut Chip, Peel, or Flake Test	10

SDS BIONIC CIRCUIT COAT

3 Day Salt Water Submersion Test	11
Cell Phone Submersion Test	12

SDS BIONIC MARINE & HULL

Deepwater Doppler Equipment Test	13
2 Month State Plate Marine Growth Test	14
8 Month Static Plate Marine Growth Test	15

PRODUCT APPLICATION

Ghana Navy PB MK3 Patrol Boat Application	17
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SDS BIONIC AUTO REVITALIZER

Tire Test	18
-----------	----

SDS BIONIC ONSITE PRODUCT APPLICATION

In-N-Out Burger	19
CalTrans	20
Dyess Air Force Base, Abilene Texas	21
Golden Gate Bridge	22
Disneyland	24
Rio Grande Gorge Bridge, New Mexico	25



SDS BIONIC METAL COAT

Standard Test Results

POWDER COATING



SDS-BIONIC METAL COAT



Both samples were scribed with an X and exposed to NSS for 23 hours and were placed in humidity cabinets set @40°C and 80% RH for 6 weeks

Test	Result
ASTM D-3359-09 Adhesion Standard Test	300 Hours 4B
ASTM D-3363 Film Hardness Taper	39.11 Average
ASTM D-2047 Static Coefficient *Always obtain independent retest of the static coefficient after applying any coating on walking surface to verify new application meets OSHA requirements.	Passes ADA Requirements*
ASTM D-2803-03 Procedure B (ISO 4623) Corrosion and Filiform.	No Filiform or Corrosion 1,000 Hours.
E96-10 Water Vapor Transmission	Average WVT 0.3473 gr/ft ² /hr, Average Perms 0.8376 gr/ft ² /hr
G155 Xenon Arc, Wavelength 340nm Irradiance 1.0 w/m ²	500 Hours, Slight Change
ISO 4623 International Standard Corrosion	No Corrosion
ISO 4628-10, International Standard, Degradation of Coating	No Degradation Coated Over Primer.




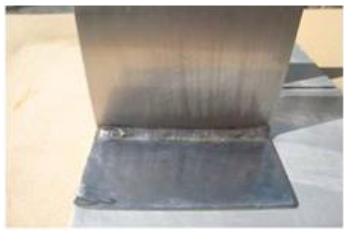
NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC METAL COAT

1 Month Electrolysis and Corrosion Test

MATERIALS

			
Standard rectangular piece of ALUMINUM	Standard rectangular piece of MILD STEEL	Standard piece of COPPER PIPING	2 pieces of STAINLESS STEEL uprights welded to MILD STEEL

TESTING STEPS:

1. Apply SDS Bionic Metal Coat to Materials
2. Allow 7 Days Curing Time
3. Expose and Subject Materials to the Outside Environment for 30 Days
4. Check Progress at 1, 5, 10, and 30 Days

Test Details	Result
July 20th Scored indoors and after 7 days of curing was permitted to begin the testing. Temperature: Room Temperature Indoor	SDS Bionic Metal Coat applied on July 13 th . 7 day curing period was allowed to maximize results.
July 21st – Day 1 The assembly has been placed in the environment for 24 hours. Temperature: 13 Degrees Celsius Rain	Aluminum, Metal and Assembly after 1 day of exposure to the environment showing rust occurring and beginnings of electrolysis on the untreated half.
July 25th – Day 5 The assembly has been placed in the environment for 24 hours. Temperature: 10 Degrees Celsius Rain	Aluminum, Metal and Assembly after 1 day of exposure to the environment continues to show rust and continued electrolysis on the untreated half.
August 1st – Day 10 The assembly has been placed in the environment for 24 hours. Temperature: 13 Degrees Celsius Sunny	Aluminum, Metal and Assembly after 10 days of exposure to the environment shows the rust truly setting in and where the copper tube is sitting, the aluminum is being eaten away in 2 areas due to electrolysis on the untreated half.
August 20th – Day 30 The assembly has been placed in the environment for 24 hours. Temperature: 19.4 Degrees Celsius Sunny	Aluminum, Metal and Assembly after 30 days of exposure to the environment shows the rust truly setting in and where the copper tube is sitting, the aluminum is being eaten away in 3 areas due to electrolysis on the untreated half.

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



DAY 1 - July 21st, 2011






STANDARD ALUMINUM	MILD STEEL	MIXED ASSEMBLY
MIXED ASSEMBLY SDS TREATED	MIXED ASSEMBLY SDS UNTREATED	

Test Details	Result
<p>July 21st – Day 1 The assembly has been placed in the environment for 24 hours. Temperature: 13 Degrees Celsius Rain</p>	<p>Aluminum, Metal and Assembly after 1 day of exposure to the environment showing rust occurring and beginnings of electrolysis on the untreated half.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



DAY 5 - July 25th, 2011

STANDARD ALUMINUM	MILD STEEL	MIXED ASSEMBLY
		
MIXED ASSEMBLY SDS TREATED	MIXED ASSEMBLY SDS UNTREATED	
		

Test Details	Result
<p>July 25th – Day 5 The assembly has been placed in the environment for 24 hours. Temperature: 10 Degrees Celsius Rain</p>	<p>Aluminum, Metal and Assembly after 1 day of exposure to the environment continues to show rust and continued electrolysis on the untreated half.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



DAY 10 – August 1st, 2011




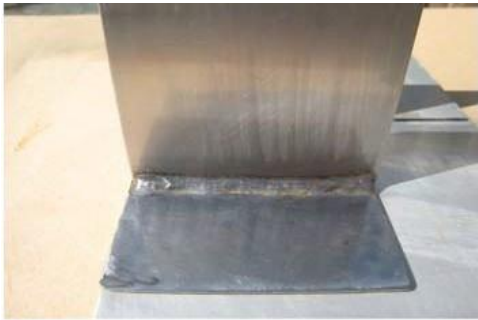

STANDARD ALUMINUM	MILD STEEL	MIXED ASSEMBLY
		
MIXED ASSEMBLY SDS TREATED	MIXED ASSEMBLY SDS UNTREATED	
		

Test Details	Result
<p>August 1st – Day 10 The assembly has been placed in the environment for 24 hours. Temperature: 13 Degrees Celsius Sunny</p>	<p>Aluminum, Metal and Assembly after 10 days of exposure to the environment shows the rust truly setting in and where the copper tube is sitting, the aluminum is being eaten away in 2 areas due to electrolysis on the untreated half.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



DAY 30 – August 20th, 2011

STANDARD ALUMINUM	MILD STEEL	MIXED ASSEMBLY
		
MIXED ASSEMBLY SDS TREATED	MIXED ASSEMBLY SDS UNTREATED	
		

Test Details	Result
<p>August 20th – Day 30 The assembly has been placed in the environment for 24 hours. Temperature: 19.4 Degrees Celsius Sunny</p>	<p>Aluminum, Metal and Assembly after 30 days of exposure to the environment shows the rust truly setting in and where the copper tube is sitting, the aluminum is being eaten away in 3 areas due to electrolysis on the untreated half.</p>

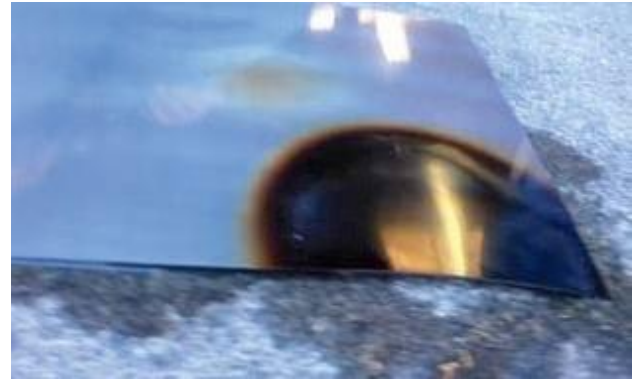
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SDS BIONIC METAL COAT

3 Minute Coating Combustibility Flame Test

Unpainted Mild Steel



Test Details	Result
Unpainted mild steel coated with SDS-BIONIC Metal Coat was heated with an 1800 degree propane torch for 3 minutes.	While the metal darkened beneath, the Metal Coat coating did not ignite, blister or peel.

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC METAL COAT

SDS-BIONIC Metal Coat Cut without Chipping, Peeling or Flaking

Large Truck Wheel Rim



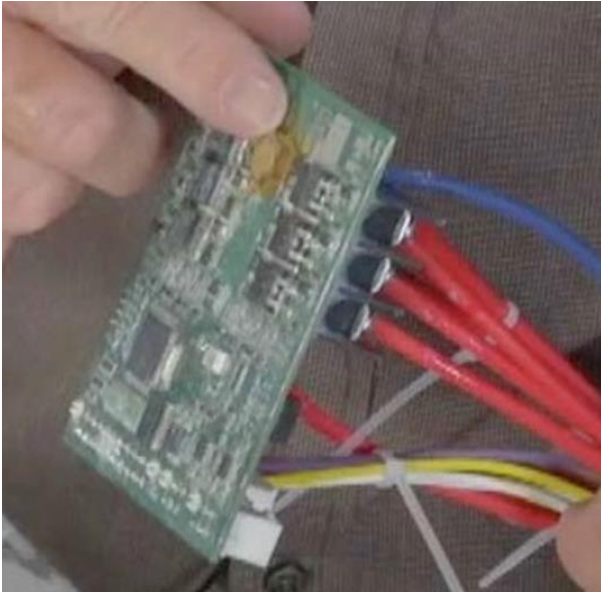
Test Details	Result
<p>The following photos are of a large truck wheel rim coated with SDS-BIONIC Metal Coat for Alcoa Aluminum. The coating was being tested for protecting their new line of truck rims being manufactured in China.</p>	<p>After successfully passing all their tests the test rim was then cut into pie shape samples for others to review the results. The shop doing the cutting was surprised that the coating did not chip, peel or flake after being cut with both band saw and C&C machine. Unlike other coatings both types of cutting had no effect on the SDS-BIONIC Metal Coat edges.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC CIRCUIT COAT *3 Day Salt Water Submersion Test*

Circuit Board



Test Details	Result
A 30 amp, 220 volt circuit board, coated with SDS-BIONIC Circuit Coat was submerged while running in salt water.	The circuit remained running and lasted for 3 days, until a breach occurred, ONLY, due to the ground bolt which had not been coated.

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC CIRCUIT COAT

Cell Phone Submersion Test

Circuit Board



Test Details	Result
Cell phone circuitry was coated with SDS-BIONIC Circuit Coat	After time for the coating to cure the phone was reassembled and submerged in water. After removal from the water the phone worked normally.

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SDS BIONIC Marine & Hull Coat *Deepwater Doppler Equipment Test*

Shell Oil's Deepwater Doppler



Test Details	Result
<p>British Marine Technology (BMT), a leading international, multi-disciplinary engineering, science and technology consultancy, is handling Doppler technology for Shell Oil. They were having to pull up and clean Shell Oil's Deepwater Doppler equipment at great expense every six months or less because of marine life over growth (as shown in the picture above) preventing clear imaging.</p> <p>The Doppler equipment was coated with SDS-BIONIC Marine & Hull Coat and placed at over 900 feet under water in the Gulf of Mexico in 2010.</p>	<p>After two years it still makes clear images indicating lack of marine growth on the sounding drum. As a result of this test BMT has approved SDS-BIONIC Marine & Hull Coat for all their Dopplers.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC Marine & Hull Coat 2 Month Static Plate Marine Growth Test

Steel Plate



Test Details	Result
A SDS-BIONIC Marine & Hull Coat protected steel plate after being submerged for two months	After 2 months the plate can be cleaned with just water from a spray bottle showing that no marine life had attached to the coated surface.

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC Marine & Hull Coat 8 Month Static Plate Marine Growth Test

Steel Plate



Test Details	Result
A SDS-BIONIC Marine & Hull Coat protected steel plate after being submerged for eight (8) months	After 8 months the plate can be cleaned with just water from a spray bottle showing that no marine life had attached to the coated surface.

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



Product Application
SDS BIONIC WORLDWIDE

C O N F I D E N T I A L



SDS BIONIC Marine & Hull Coat

Ghana Navy Approves PB MK3 Patrol Boat Application

20 meter long ex-US Navy PB MK3



Application Details	Result
The Ghana Navy has a single 20 meter long ex-US Navy PB MK3 inshore patrol craft that was built in the 1970s and transferred to Ghana in 2001.	The Ghana Navy has completed testing SDS-BIONIC Marine & Hull Coat. With positive results, the Ghana Navy has now implemented SDS- BIONIC Marine & Hull Coat for their patrol boats.

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SDS BIONIC AUTO REVITALIZER

Tire Application

BEFORE APPLICATION	AFTER APPLICATION
	
5 MONTHS AFTER APPLICATION	
	

Application Details	Result
<p>Auto Revitalizer was applied to six year old sun faded tires on 11/14/2011. Auto Revitalizer eliminates the need to wash tires, saving fleet maintenance costs, for water, cleaners and labor.</p>	<p>On 3/19/2012, five months later, Auto Revitalizer was still keeping the tires clean even in the snow and muddy roads at Lake Tahoe.</p>

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IN-N-OUT BURGER *Application*

IN-N-OUT BURGER



Application Details	Result
<p>IN-N-OUT Burger has completed a test location using SDS BIONIC Multi-Purpose Sealer and SDS BIONIC Concrete Coat to protect various surfaces inside and outside the building.</p> <p>Management has their own in house cleaning crew which was excited that the coatings eliminated the need for power washing and the surfaces look cleaner than they ever have.</p>	<p>They have now completed application of SDS BIONIC Products in three locations and approved SDS BIONIC Products for all 150 of their existing restaurants as well as planning to use them for the average 8 new locations they open each year!</p>

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CALTRANS PROJECTS *Application*

CALTRANS



LETTER FROM CALTRANS PRESIDENT – MIKE HOPWOOD

Friday, March 30, 2012 7:46 AM

To: Rick Stenberg

Subject: CalTrans Projects

Dear SDS BIONIC,

In response to your inquire with regards to the approved Cal- trans business, we have several ongoing projects in review and two that have been approved. We are currently in the process of the getting all the products approved by the state to go into the general purchasing listings of approved prod- ucts. Part of this process was the signing of an NDA which limits the ability of the state and us to disclose information without prior approval. However, I can give you information on the two projects we have been approved for.

District 10 and District 4 Road Signs

Each district has its own buying regulations. District 10 has approved the use of the SDS-BIONIC Graffiti Coat to be used on all the signage in the district. We have just finished the delivery of the first 180+ signs. More signs will be contracted to be coated through our approved partner in District 10. The District has gone through all the testing of the product and has written their approval letter for using the coating on the signs. This letter was to be used strictly for internal use as Caltrans has strict standards for public announcements related to Caltrans products. Hence the NDA. I personally have the signed letter from the Manager in charge of the Signs Department. If you would like a copy of this letter for you own files I can send it to you with the understanding that it is not to be made public.

Tunnels and Tubes

We have been approved as the preferred coating on the Devil's Slide Tunnel Project as a protective coating for the concrete, paint covered concrete and metal. The Director in Charge of Tunnels and Tubes is in the process of making the required specification changes now. The decision to move to the nano coating was made after extensive testing and outperforming the competition that was originally specified. We should have final confirmation on the completion of the spec change as soon as it happens.

Regards,

Mike Hopwood President

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DYESS AIR FORCE BASE, ABILENE, TEXAS *Application*

AIRPORT HANGER



Application Details	Result
<p>Completed April 21st 2012, SDS BIONIC Concrete Coat was Applied on painted surfaces at Dyess Air Force Base. The majority of the project was top coating yellow and black diagonal caution striping inside and outside of both hangar doors. There is over 6,000 sq. ft. of striping installed. This hangar had two identical halves used to maintain three Air Force planes: C130H, C130J, and B1b. All painted surfaces were coated with Concrete Coat.</p> <p>Caution stripes were installed outside with an airless striping sprayer and then top coated with SDS BIONIC Concrete Coat the next day using a pump-up sprayer.</p>	<p>The painted surfaces now treated with SDS BIONIC Concrete Coat will resist oils and staining. The floor will be easy to clean, maintain, and they will last many years longer than ordinary paints as well as resisting stains better than epoxy or polyurethane.</p> <p>The coated surfaces had paint spilled on them after installation and we could wipe it off with Xylene or Acetone with complete removal and no loss in gloss.</p>

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GOLDEN GATE BRIDGE, SAN FRANCISCO, CALIFORNIA

Application

BRIDGE & COMMON AREA





GOLDEN GATE BRIDGE, SAN FRANCISCO, CALIFORNIA

Application (cont.)



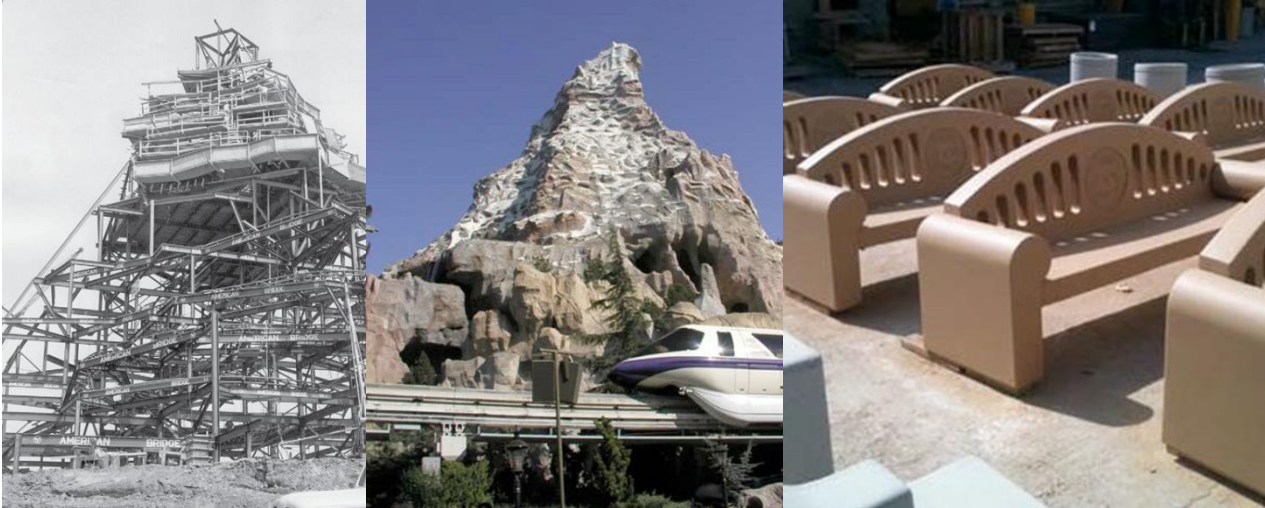
Application Details	Result
<p>The Golden Gate Bridge concrete cable and tower footings show signs of deterioration, becoming more porous and allowing the metal rebar to rust and corrode. SDS BIONIC Multi-Purpose Sealer will be used to protect these surfaces. They are also planning to use it to protect the historic civil war Fort Point under the bridge.</p> <p>Caution stripes were installed outside with an airless striping sprayer and then top coated with SDS BIONIC Concrete Coat the next day using a pump-up sprayer.</p>	<p>May 28th, 2012 was the 75th Anniversary of the Golden Gate Bridge. The Golden Gate Bridge District actively prepared for this event with the construction of a new visitor center and a renovation of existing buildings and walkways. SDS BIONIC Multi Surface Sealer was used on sidewalks and benches. SDS-BIONIC Metal Coat was applied to protect the interactive bridge model displays as well as the 27 ton display of a cross section of the cable used on the bridge pictured to the right. SDS BIONIC Concrete Coat</p>

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DISNEYLAND *Application*

AIRPORT HANGER



Application Details	Result
<p>The Matterhorn ride at Disneyland has a steel structure that gets epoxy coated two times a year to prevent corrosion. SDS BIONIC Metal Coat was applied in May of 2011 on a portion of the structure as a test. The coated steel has now passed all their testing, showing no signs of rust or corrosion in 11 months.</p>	<p>They are proceeding with application on the entire structure. The success of SDS BIONIC Metal Coat on the Matterhorn has led to planned use in many other areas of the park including the monorail.</p> <p>SDS BIONIC Metal Coat will protect it from corrosion, keep it clean and help keep the paint from oxidizing. This success is leading to use of SDS BIONIC products at Disneyland Resorts around the world.</p>

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RIO GRANDE GORGE BRIDGE *Application*

3,600 BRIDGES THROUGHOUT NEW MEXICO



Application Details	Result
<p>The Rio Grande Gorge Bridge is a cantilever truss bridge over the Rio Grande, in New Mexico, 650 feet below. It was completed in 1965 and was once named Most Beautiful Steel Bridge in the Long Span category by the American Institute of Steel Construction.</p>	<p>The New Mexico Department of Transportation completed a year of evaluating tests and has approved SDS BIONIC Metal Coat and SDS BIONIC Multi-Purpose Sealer for use on a portion of the famous Rio Grande Gorge Bridge and applied in May of 2012.</p>

NOTE: Testing was done with SDS-BIONIC Metal Coat but all the SDS-BIONIC Coating products utilize the same core product and theoretically produce similar results. (ie: Marine & Hull Coat, Concrete Coat, Wood Coat, or Stone Coat.)



SDS BIONIC WORLDWIDE

C O N F I D E N T I A L