

## NIPPON CRS

### Corrosion Retardant Solution

#### Description

NIPPON CRS primer has the ability to create a strong adhesive bond with metal and provide a surface coating that encapsulates corrosion and protects old, deteriorating, ferrous substrates. NIPPON CRS may be applied directly to surfaces with tightly adhered intact rust (with proper preparation). NIPPON CRS will penetrate tightly adhered intact rust to bond with the metal substrate below to stop the corrosion process.

When properly applied, NIPPON CRS provides both the applicator and asset owner with a cost effective infrastructure maintenance program. NIPPON CRS is environmentally friendly due to it being water-based, extremely low VOC level, and ease of application and use.

**NOTE: NIPPON CRS is not a structural or restorative product and should only be used on substrates that are structurally sound.**

#### Basic Usage

NIPPON CRS is primarily used as a primer coating to protect ferrous materials from further deterioration and loss of mass, through exposure to many naturally occurring elements.

- Concrete encased metal
- Metal Stairs and Ramps
- Corrosion Under Insulation (CUI)
- Corrugated and Metal Roofs
- Ship Decks
- Columns - Beams - Bridges
- Tanks
- Mines, Infrastructure, Pipe exteriors

NIPPON CRS, in some cases may be used in some cases as a stand-alone solution, although more often as a part of a more comprehensive solution utilizing other Nippon Paint products. In addition, NIPPON CRS may be used as a functional primer for other coating systems.

#### Benefits

- Simplified surface preparation
- Can be applied via brush, spray, or roll
- Penetrates rust and bonds to metal below
- Extends time between maintenance cycles
- 1K Water-borne product
- Flexible re-coat window (weeks vs hours)
- Ease of clean-up (water and solvents)
- Remarkable ease of application
- Minimal odor
- Water resistant

## Information / Composition of Components

Proprietary formulation no hazardous ingredients according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

<b>Number of Components:</b>	One
<b>Mass Density:</b>	1.2 - 1.3 gr/cc
<b>Volume Solids:</b>	52% ± 2%
<b>VOC:</b>	25 grams per liter
<b>Viscosity:</b>	200 - 600 cSt
<b>pH:</b>	8 - 9
<b>Recommended DFT:</b>	25 - 75 microns (1 - 3 mils) Dry Film Thickness (DFT)
<b>Time Dry to Touch:</b>	20 - 40 min
<b>Overcoating Intervals:</b>	When dry to touch
<b>Full Cure After:</b>	24 - 48 hours
<b>Shelf Life:</b>	12 months at 4-40°C (in original sealed container)
<b>Physical State at 20°C:</b>	Liquid
<b>Appearance:</b>	Dark Gray
<b>Odor:</b>	Slight Acrylic
<b>Freezing Point [°C]:</b>	0°C
<b>Boiling Point [°C]:</b>	100°C
<b>Vapor Pressure:</b>	2.3 kPa at RT
<b>Flammability (Solid, Gas):</b>	Not Flammable

## Upper / Lower Limit on Flammability or Explosive Limits

<b>Flammability Limit Upper (%):</b>	N/A
<b>Flammability Limit Lower (%):</b>	N/A
<b>Solubility in Water:</b>	Partial
<b>Auto-ignition Temperature [°C]:</b>	N/A
<b>Decomposition point [°C]:</b>	N/A

<b>Dry / Cure Time Guidelines – NIPPON CRS</b>		
<b>Substrate Temperature</b>	<b>Time - Dry to Touch</b>	<b>Time - Dry to Service (Chemical Cure)</b>
21 °C / 70 °F	1 hour	48 hours
32 °C / 90 °F	45 minutes	24 hours

<b>Heat Resistance – NIPPON CRS</b>	
Maximum Surface Temperature	96 °C / 205 °F
Smoke Point Surface Temperature	146 °C / 295 °F

<b>Coverage – NIPPON CRS</b>	
Unit of Material	Coverage in Sq. Ft.
1 Gallon	500 sq. ft. *

\* When sprayed using an airless sprayer at a thickness of no more than 3-4 mils (wet)

## **Shelf Life & Proper Storage - CRS**

Shelf life of the product should be at least 12 months if stored in a moderately cool, dry environment and in tightly sealed container.

## **Surface Preparation**

Application surfaces must be structurally sound, and the overall structural integrity of the asset is critical to the overall success of any coating or overlay. Some surface damage such as deterioration, cracks and spalls can occasionally be repaired, but CRS does not provide structural improvement or enhancement.

CRS has been formulated to penetrate into tightly adhered intact rust, and bond with the substrate surface. Other materials (such as petro-chemicals) which could interfere with this process, must be removed. Remove any loose, soft, or contaminated materials from the area that will be repaired / resurfaced.

A comprehensive prep system for CRS will include the following program: Remove all loose debris using a hand pump or spray on a degreaser over the entire area, let sit for 5 minutes (allowing degreaser to sit for longer will NOT increase effectiveness), and then completely rinse 2 times. Let dry for 30 minutes before any further application. With extreme surface dirt or oil, you may have to apply a second time. You must repeat this process until the substrate is free of any petro-chemical substances.

**An optimal application of CRS is to aim for a total thickness of 2-3mils WFT (Wet Film Thickness)**

## General Application Information

CRS can be applied using a sprayer, brush, trowel or roller depending upon the application tools available, substrate, volume of surface to cover, vertical or horizontal surface, hard to reach areas or unique thickness requirements. Please review the above information regarding a thoroughly cleaned substrate. A light application of water could be applied to the area in hot conditions but if sprayed it is NOT mandatory due to the effects of a high volume, low pressure sprayer (15-80psi) rebound or splash back should be minimal.

With any application method, to avoid mud cracking, do not use too much material on a single coating. Instead, use less material across 2 layers, and make sure the previous layer properly dries before adding a new layer.

### **NOTE: Pay Special Attention to Application on Surface Edges**

Ensure proper coverage on edges, as during normal hydrolysis induced cure, the material may become thinner than expected. Brush edges or corners before spraying the surface to ensure enough material is in contact with the substrate.

## Airless Spray Application

Line pressure should be 1,800 to 2,200 lbs

Spray tip sizes that can be used: 311 – 617

Use a line size of ¼ inch at your spray gun with an in-line filter

When spraying, hold your spray gun 12-24 inches from the substrate at a 90-degree angle to achieve minimum over-spray.

**First pass:** Spray 1-1.5 wet mils (max) all in one direction, for instance “East-West.” Allow at a minimum 10-15 minutes for this pass to dry.

**Second pass:** Spray another 1-1.5 wet mils (max) in an alternate direction, for instance “North-South.” Dry film thickness when both applications are done should be as close to 2 mils as possible.

**Do not over build each spray application exceeding recommended wet film thickness of 2-2.5 mils or else material will run.**

## Conventional Spray Application

We only recommend using quality conventional spray guns from brands like: Binks, DeVilbiss, etc. Spray pot pressure: 20-40 lbs

Spray air pressure: 40-60 lbs - adjust to your environmental conditions

When spraying, hold your spray gun 12-18 inches from substrate at a 90-degree angle to achieve minimum over-spray.

**First pass:** Spray 1.5-2.0 wet mils (max) all in one direction, for instance “East-West.” Allow at a minimum 10-15 minutes for this pass to dry.

**Second pass:** Spray another 1.5-2.5 wet mils (max) in an alternate direction, for instance “North-South.” Dry film thickness when both applications are done should be between 1.5 to 2.5 mils.

**Do not over build each spray application exceeding recommended wet film thickness of 1.5-2.5 mils or else material will run.**

All spraying equipment must be cleaned. If there is any break in the spraying procedure, water should be immediately used to clean the nozzle and hose. For any CRS that has started to dry, use common solvents like paint thinner to clean.

**YOUR EQUIPMENT MAY BE PERMANENTLY DAMAGED IF NOT CLEANED WITH PLENTY OF FRESH, CLEAN WATER DURING ANY INTERRUPTION IN SPRAYING.**

## **Brush, Roller or Trowel Application**

The applicator should treat the brushing or rolling of CRS the same as a latex paint when it comes to consistency when mixed properly. When brushing on a vertical surface, start from the bottom-up, there should be virtually no liquid running down the substrate.

Brush marks may be visible after the first brush or roller pass, but after a second pass the surface will be smoother. Brushed or Rolled surfaces will not have as glossy a surface as a sprayed application. Continue to agitate the CRS solution during application. Let each coat dry completely before applying a second coat.

### **NOTE: Pay Special Attention to Application on Surface Edges**

Ensure proper coverage on edges, as during normal hydrolysis induced cure, the material may become thinner than expected. Brush edges or corners before spraying the surface to ensure enough material is in contact with the substrate.

Refer to our Material Safety Data Sheet (MSDS) regarding regulatory compliance, safety, hazards, spill procedures and disposal of this product. While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application/ use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE.