

## Data Sheet

# Sentry Metal Shield



### Description

Sentry Metal Shield is a quartz coating for all metal surfaces. Metal Shield is peel and flake resistant and designed to protect metal surfaces from normal destructive forces.

Provides a long-lasting barrier that provides superior resistance to rust, moisture, corrosion, salt spray, acid rain, UV damage, oxidation, galvanic corrosion, animal and bird waste damage, graffiti and reduces ice adhesion.

Available in a gloss, satin or matte finish.

### Surface

- Iron
- Steel
- Stainless Steel
- Aluminum
- Galvanized Steel
- Copper and Bronze
- Powder Coated Metal
- Painted and Primed Metals

### Solution

- Moisture
- Corrosion
- Rust
- Oxidation
- Galvanic Corrosion
- Wind Drag
- Dirt Build-Up
- Ice Build-Up
- Animal and Bird Waste Damage

### Characteristics

- **Color:** Clear to slight Amber to Rose depending on temp and humidity. It always dries clear.
  - Available with one of 20 translucent color stains.
- **Finish:** Gloss, and Satin.
- **Vehicle Type:** Solvent Base
- **Flash Point:** (C Pensky-Martens Closed Cup) - 9C/15F
- **VOC:** less than 100 g/liter
- **Weight per Gallon:** 7.36 lb./gallon
- Non-breathable

## Testing

Testing done at ISO 17025 approved testing lab.

- ASTM G85-11, Annex 5 Acidic salt spray 1000 hours: 10 out of 10
- ASTM D4587-11 Fluorescent UV-Condensation 1000 hours: 10 out of 10
- ASTM D-1654-08 Accelerated Weathering Exposure, 1000 hours: 10 out of 10
- ASTM D-5894-10 Cyclic Salt Fog UV Exposure of Painted Metals, 1000 hours: 10 out of 10
- ASTM D-7140-02 (09) Blistering of Paints. 1000 hours: 10 out of 10
- ASTM D-610-08 Rusting on Painted Steel Surfaces, 1000 hours: 10 out of 10.
- ASTM D-3363 Film Hardness Taber, 39.11 average
- ASTM D-2803-03 Procedure B (ISO 4623) Corrosion and Filiform. No Filiform or Corrosion 1,000 hours.

**Note:** Steel without a primer test results: approx. 300 hours until rust occurs.

\*Always obtain independent retest of the static coefficient after applying any coating on walking surface to verify new application meets OSHA requirements.

## Spread Rate

### Recommended Spread Rate:

- Wet mils: 2.0-2.5
- Dry mils: 0.7-1.75

## Coverage

Coverage: 640-800 sq. ft. /gal (approximate) Coverage will vary depending on the porosity and texture of the substrate.

## Surface Preparation

Surface's must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, and other foreign material using [Sentry Step #1 Cleaner for Unpainted Surfaces](#) or [Sentry Step #1 for Painted Surfaces](#) on painted metal. To remove scale use [Sentry Step #1 Scale Remover](#) and for light to medium rust use [Sentry Rust Remover](#). Heavy rust must be sandblasted or ground off.

### New Iron & Steel

The entire surface must be cleaned of any rust, scale, oil, and grease. On hot rolled steel, make certain to

sandblast or grind off 100% of the slag from that process, as the surface tension of the coating can pull the slag off, causing de-lamination of the coating. To ensure the surface is free of oil and grease, use a white rag with either [Step #1 cleaner](#) and wipe the surface. If the rag remains white, your surface is clean. If the rag turns dark, continue cleaning until it remains white. Prime the bare metal with a quality rust and corrosion primer per the manufacturer's instructions. After primer has dried per the manufacturer's instructions, apply 1 coat of Metal Shield per application instructions.

**Important:** make sure when applying over primers that the re-application time set by the primer's manufacturer is followed, as the Metal Shield needs to anchor. If re application window has passed, you must mechanically abrade the surface by sanding with a minimum of 220 grit sandpaper to achieve an anchor system for the Metal Shield.

**Important:** When applying over steel or iron that has no primer, you must apply two coats of Sentry Metal Shield wet over tack, no more than 15 minutes apart. This will fill micro holes that can rust if not coated properly.

### Old Iron & Steel with Existing Primer or Paint

Inspect the condition of the primer and paint to ensure it is sound and free of peeling or chips and that there is good adhesion. Sand blast to a minimum Commercial Blast Clean SSPC-SP-6 method or abrade off any existing peeling paints until you reach a solid base or repair by sanding with 220 grit sandpaper or lower, then re-paint as needed. Once re-painted areas are dry and cured, wipe surface with [Sentry Step #1 for Painted Surfaces](#), then wipe down with a damp rag with fresh water to prevent removal of the existing paint. Once surface is clean and dry, Metal Shield can be applied. Only apply one coat.

### Aluminum, Copper, Brass, Bronze, & Stainless Steel

Clean the entire surface of any oil and grease using [Sentry Step #1 Cleaner for Unpainted Surfaces](#). Rinse with fresh water and dry. The surface must be free of any oil or grease to form a good bond. To ensure the surface is free of oil and grease, use a white rag with [Sentry Step #1 Cleaner for Unpainted Surfaces](#) and wipe the surface.

If the rag remains white the surface is clean; if the rag turns dark, continue cleaning until it remains white.

Once clean, Metal Shield can be applied per application instructions. Only apply one coat.

### **Galvanized Steel**

Clean off all oil, grease, and dirt with [Sentry Step #1 Cleaner for Unpainted Surfaces](#). Rinse with fresh water and dry. To ensure the surface is free of oil and grease, use a white rag with [Sentry Step#1 Cleaner for Unpainted Surfaces](#) and wipe the surface. If the rag remains white the surface is clean. If the rag turns dark, continue cleaning until it remains white. Once clean, Metal Shield can be applied per application instructions. Only apply one coat.

### **Powder Coated Metals**

Inspect the surface to ensure there are no breaches in the powder coating. If any appear, make certain to have them re-coated or primed with a matching paint to touch up.

Clean the entire surface of any dirt, oil or grease using [Sentry Step #1 Cleaner for Painted Surfaces](#). Rinse with fresh water and dry. Do not use solvent as it will damage the powder coating. Once the surface is clean and dry, Metal Shield can be applied per application instructions.

Only apply one coat. Enhancement is not desired, use any good water-based sealer that does not contain silicone.

## Application Instruction Test Area

### **Test Area**

Due to the wide variety of metals and the various methods of application and environments, always test Metal Shield in an inconspicuous location to ensure adhesion and determine that the desired look is achieved. There will be a slight enhancement in appearance from the original surface, which will vary based on gloss, satin, or matte finishes available.

## Application

Metal Coat, as with most final finishes, is best sprayed on to achieve optimum finish and appearance. With all methods of application, always mask off any adjacent surfaces to keep them free of drips or accidental coating. Metal Shield should be sprayed.

However, if the project configuration and location don't allow for spraying, you can as an alternative. Brush

using a fine Chinese bristle brush or roll on with a high-density, ultra-smooth foam roller or dip. This type of alternate application will not yield the same spread coverage and will not typically give you the optimum smooth finish as spraying would.

If applying outdoors, make certain the ambient temperature is between 45°F and 105° F, and RH is under 90%. Make certain that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional return of morning dew to make the surface damp again before it has had a chance to dry for at least 5 hours.

### **Spraying**

Stir the contents thoroughly to re-suspend the Nano particles that have settled to the bottom. You should feel a thick layer of sediment with your stir stick in the bottom of the container. This all must be re-suspended in the liquid to ensure performance of the coating.

Make certain to re-stir every 15-20 minutes to re-suspend the settling Nano particles during the application process to ensure proper performance of the coating. When surface preparation is complete, and surface is dry and free of dust, begin application using a high volume, low pressure (HVLP) spray gun with a 1.0-1.3 size tip and the pressure set at approximately 25 to 30 psi.

On a separate piece of cardboard, first spray a test pattern to achieve an 8"to 10" elongated pattern approximately 1 ½" wide in the middle and fluid enough to cover but not puddle. If there is high wind, this will affect the quality of the finish, as blowing wind can disrupt the spray pattern from your HVLP. It can also contribute to contamination of the finish from blowing dust.

It may be necessary to erect a windscreen to protect the area. Once the spray pattern is achieved on the test cardboard, spray one coat in a cross-pattern; left to right, then up and down. This will provide sufficient coverage and will help prevent holes in coverage.

**Exception for one coat is on unpainted steel or iron, which requires 2 coats wet on tack.**

Desired wet film thickness (WFT) is approximately 2.0 to 2.5 mils. To spray small pieces or tight locations, you can use a "Preval" sprayer. This is a small disposable sprayer that can spray any liquid and holds

approximately 6 oz., which is ideal for touch ups as well. Available in the paint department of major home improvement stores, or major paint store chains.

**CAUTION:** If using spray application method in an enclosed space, make certain to tent off the area being sprayed with plastic tarps to avoid spray dust from traveling and contaminating other surfaces with over spray dust. Tented and enclosed areas always require to be positively supplied with fresh air and have ventilated exhaust to outside using fans.

Never spray near any open flame or any possible source of ignition such as pilot light, or anything that may spark, as this may cause ignition and explosion of the fumes and vapors. In enclosed areas, make sure to have an observer watching the applicator for any signs of physical distress.

### Rolling

Make certain the surface is clean per preparation instructions. Stir the contents thoroughly to resuspend the Nano particles that have settled to the bottom. You should feel a thick layer of sediment with your stir stick in the bottom of the container. This all must be re-suspended into the liquid to ensure performance of the coating.

Make certain to re-stir every 15-20 minutes during the application process to re-suspend the settling Nano particles. Using a white, ultra-smooth high-density foam roller (available at most major home improvement stores), pour the Metal Shield into a roller pan and completely saturate the roller.

Apply in a cross-pattern; left to right, then up and down as quickly as possible, since the coating dries fast. It also gives a better-looking finish if you avoid down pressure on the roller.

### Brushing

Make certain the surface is clean per preparation instructions. Stir the contents thoroughly to resuspend the Nano particles that have settled to the bottom. Make certain to re-stir every 15-20 minutes during the application process to re-suspend the settling Nano particles. Select the appropriate size brush width based on the surface area being coated. Using only a good quality China bristle brush, apply Metal Shield in a cross-pattern; up and down, then left and right. To obtain the best results, do not overwork the coating, as it dries quickly. Do not bear down with the brush. Use light strokes using the tip of the brush to smooth out the

coating. Desired wet film thickness (WFT) is approximately 2.0 to 2.5 mils.

### Dipping

Make certain the surface is clean per preparation instructions. Stir the contents regularly to resuspend the Nano particles that have settled to the bottom. Make sure to apply a blanket of nitrogen gas over the coating in the tank to prevent flashing of the solvents and evaporation of the product.

Dip the pieces and agitate back and forth and up and down and remove to dry rack. Make certain to re-stir every 15-20 minutes during the application process to re-suspend the settling Nano particles.

### Staining Metal Finish

Metal Stain can be added to your application process by adding 8 oz. of stain (20 colors available) to 1 gallon of Metal Shield and mix together well. Spraying is best using the same method described under the "SPRAYING" section.

You need to spray very thin fog like coats, wet on wet until desired look is achieved. This may require 3-5 coats, 5 minutes apart to get the coverage and look. Do not apply only one thick coat as it will not flow out and most likely will puddle up or fish eye with the stain added.

After the look is achieved and the coating has tacked up, apply one thin, clear coat of the Metal Shield in the desired gloss. If the stained coats have dried before you coat with the clear, wait 24 hours, lightly abrade with 220 grit sandpaper, tack cloth any dust off, and then apply the clear and final coat.

The stained color chart is a representation only and is over brushed aluminum. It only represents the general look over that substrate. This is a stain and not a solid pigment like paint. Every substrate will reveal a different final color, which will vary from the color stain chart. Methods and applicators will also vary the color.

**Always do a test on the actual substrate before doing an entire application to make certain the color is acceptable.**

## Warranty: Limited 10 Year

Sentry Molecular Coatings Inc. guarantees Sentry Metal shield to be defect free, any material that is proven to be defective will be replaced in a like quantity by the manufacturer within 10 years of date of purchase with proof of purchase and provided it has been applied according to the instructions on this container and data sheet along with other related guide-lines posted at [SentryMolecularCoatings.com](http://SentryMolecularCoatings.com).

This warranty only extends to the owner of the property upon which the product is applied and is non-transferable. This warranty does not cover wear and tear. This warranty is for manufactures defects only. Any warranty claim must be made in writing and sent to seller with supporting materials and access to the property for inspection and testing as requested by seller. Seller will thereafter provide 100% replacement product for product found to be defective for the first 3 years then the product replacement will be prorated every year until year 10.

This warranty is given in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. The remedy stated herein is an exclusive remedy and Seller shall not be responsible for any other damages, including labor or any incidental, consequential, special or punitive damages, whether based on breach of express or implied warranty, negligence, strict liability or other legal theory.



Prevents Galvanic Corrosion



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