



Public Works Sanitary Landfill Sioux Falls, SD

Industrial Customer:

Sioux Falls Sanitary Landfill

Project:

Coat three roll off recycling containers with Nano-Clear Industrial coating.

The objectives were to:

- 1) Convert and stop the rust progression.
- 2) Penetrate and fortify 10+ year old heavily oxidized paint providing long term protection.
- 3) Enhance the color of the containers to make them presentable to the public.

Project Location:

Hartford, SD

Applicator:

Albers Painting, Lenox, SD

Coating Formulation:

Nano-Clear Industrial (NCI) coating

Dates:

Cleaning and prep: 15 June 2017

Application: 16 June 2017

Conditions:

80F, 50%RH, sunny



PROJECT OVERVIEW:

Nano-Clear Industrial (NCI) polyurethane/polyurea, aliphatic, crystal-clear, penetrating top coating was applied to three roll off recycling containers – red, brown and blue.

These city containers are used by the public and appearance is important.

These containers are a significant purchasing expense so maximizing service life is important to Public Works.

All three containers were over 10 years old with the original aromatic paint. Over the years the paint had faded (and in some areas faded to white) from UV exposure. The UV also caused the aromatic paint to oxidize and consequently begin to fail.

There were many areas of advanced rust on all three containers.



ROLL-OFF CONTAINERS

Coating Formulation: **NCI** - a crystal clear, aliphatic, moisture cured, one component, polyurethane/polyurea hybrid formulation with extreme cross-link density resulting in excellent physical properties for UV, chemical and abrasion resistance. **NCI** is formulated to penetrate and fortify existing paint systems (newly painted or highly oxidized), not replace them, to create a coating system that is “tougher” than the existing paint alone.

Other Applications: Above ground storage tanks, equipment, exterior doors, light poles/posts, railings, signs – any asset that has degraded paint from UV, chemical and abrasion forces. Newly painted assets should also be a primary application consideration.

CURRENT SITUATION:

The city's recycling containers were in good condition structurally with many more years of potential service if the rust could be stopped and a solution be found for the degrading paint.

The containers cost between \$4,000 - \$5,000 each so they are valuable assets the city would like to use as long as possible to maximize the return on investment.

- The paint was badly faded on the blue container to the point where some areas on the blue container were white – the pigment in the paint had been completely bleach out.
- The paint on the red container had also blushed to light red/pink, the pigment had almost been completely bleach out.
- The brown container was faded but had most of its color remaining.

All the containers were oxidized. All the containers had rust, some areas had flaking rust, a few areas on the containers had rusted through.

*Aromatic paint systems
need help
to achieve the years of
protection required by
asset owners/managers.*



Before NCI



After NCI

NOTE: It is always best to implement a Nano-Clear maintenance solution before the pigment in the paint color bleaches out and rust begins to appear.

ISUSA SOLUTION:

NCI is formulated to penetrate and fortify oxidized, weathered paint systems. **NCI** is new cross-linking formulation technology that results in the cured coating having 3x more cross-link density than alternative or competitive top coats. This cross-link density creates a “tough” coating that protects against UV, chemicals and abrasion. The **NCI** combines with the existing paint system forming a long-lasting protection system.

Industrial Solutions USA proposed using a rust convertor/primer and then Nano-Clear Industrial coating to create a coating system that would enhance the existing color and add many more years of protection to the containers.

The rust convertor/primer stops the rust by chemically converting it to inert magnetite (black in color). The convertor is also a primer which will enhance the adhesion of **NCI** to the converted rust areas resulting in a monolithic protective coating over the entire surface of the containers.

Applying Nano-Clear Industrial coating to the containers eliminated costly re-painting of the containers which saved the city significant maintenance money (approximately 45% over re-painting).

An added benefit is that re-painting the containers with an aromatic paint would only delay the inevitable oxidation/degradation that occurred with the original paint – **NCI** is an aliphatic coating that will not allow the underlying paint to fade or oxidize.

APPLICATION:**Preparation:**

- A wire brush and a scraper were used to remove as much loose material as possible from the rusted areas. The objective is to have only tight rust on the substrate, this is required prior to applying a rust convertor. It ensures the converted rust will be securely adhered to the steel substrate. Pressure washing may remove most of the loose material but using a wire brush/scraper ensures the rusted material will be removed.
- All three containers were cleaned with a biodegradable, phosphate free cleaner (SuperClean) using a soft bristled broom to agitate dirt and oils off the paint. Then the containers were thoroughly rinsed with clean water (ambient temperature) using a pressure washer (approximately 4,000 psi).
- After the containers were dry, the rust convertor/primer was brush applied to the rust areas to convert and stop the rust from progressing. For large rust areas, the convertor may be sprayed – if sprayed it is recommended to brush or roll back the sprayed material to be sure the convertor is worked into the rusted areas.

NOTE: The converted rust areas were not re-painted prior to apply **NCI**, that is an option prior to applying **NCI**.

ROLL-OFF CONTAINERS

Before NCI



After NCI



Please contact us for more information:

www.isusananoclear.com | 605-274-9295

**Before NCI,
with rust convertor**



**After NCI,
Rust converted areas blended**



ROLL-OFF CONTAINERS

Result:

- Approximately 2.5 gallons of material was used to cover each of the roll-off containers.
- The resulting protective dry film thickness was approximately 1+ mil.
- Time to complete the spray application of **NCI** to all three roll-off containers was approximately 2 hours.
- The containers were allowed to fully cure for 24 hours before putting them back into service.

SUMMARY & CONCLUSION:

NCI was applied to three roll-off recycling containers to extend their service life without the expensive cost of re-painting.

The substrate preparation prior to application of **NCI** was minimal:

- Clean with low concentration of biodegradable detergent using a soft bristled broom followed with rinsing with pressure washer using ambient temperature water.
- Allow to dry and apply rust convertor/primer.
- Allow to cure overnight and spray apply Nano-Clear Industrial coating.

The **Nano-Clear Industrial coating** penetrated the paint system and fortified it with superior physical properties – much better physical properties than the original paint and enhanced the color at approximately half the cost of re-painting.

The combined **NCI**/paint coating system extends the protection of the containers for many years eliminating at least one re-painting maintenance cycle – paying for the cost of applying **NCI**.

NCI does not replace paint systems - **NCI** is the economical solution to extend the performance life of paint systems.

