

Hate Rust

ROVALize it Now!



Roval Cold Galvanizing Compound



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Roval Cold Galvanizing Compound



ROVAL has a high 96% zinc content in its dry film and its anti-corrosion performance is equivalent to that of hot-dip galvanizing. Whether being used as an alternative to hot-dip galvanizing for the overall coating of steel structures, or being applied to the restoration and renovation of galvanized surfaces, ready-to-use ROVAL cold galvanizing has been widely used for more than half a century for the anti-corrosion protection of steel structure in various fields.

Renovation of galvanized surfaces



Connection corridor between the buildings



Stereo garage

ROVAL can effectively extend the service life of galvanized sheets

Restoration of galvanized surfaces



Cut surfaces



Welding parts

ROVAL is the best choice to repair the cutting surface, welding parts, and the galvanizing layers without zinc coating or with zinc coating falling off.

An alternative to hot-dip galvanizing



Hall facilities



Weak parts that are easily deformed under high temperature

ROVAL can be used as an alternative to do anti-corrosion protection of larges parts that can't be put into the zinc-plating tank and of weak parts that are easily deformed under high temperature.

Anti-corrosion protection to steels



Steel fence



Connection components

ROVAL can achieve the same anti-corrosion effect with that of hot-dip galvanizing by being directly coated on the surface of the steel to prevent the steel from rust.

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ROVAL

Cold Galvanizing Compound



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AQUA ROVAL

Cold Galvanizing Compound

Heavy-duty corrosion-resistant paint applies to daily living environment well with its VOC content reducing 97% compared to that of solvent paints of ROVAL.



P.05 Better heat resistance and solvent resistance

Achieve high quality coating system by using together with RV-TOP (Color Customizable)

EPO ROVAL

Cold Galvanizing Compound



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ROVAL α

Zinc Rich Compound



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Zinc Rich Compound



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COVER SERIES

ZC Galvanizing Repair Metallic Spray & MC Color Matching Metallic Spray



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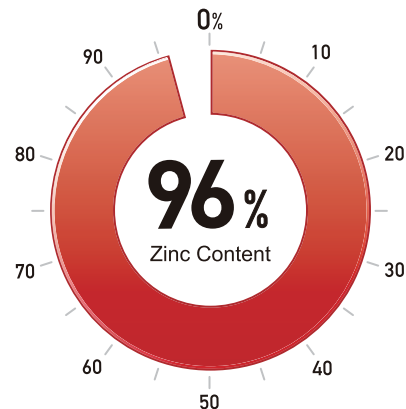
Applications P.17

**Ready-to-use single pack type cold galvanizing.
Equivalent anti-corrosion performance to hot-dip galvanizing.**

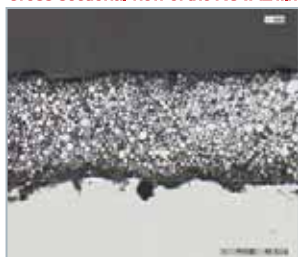
ROVAL

Cold Galvanizing Compound

With 96% zinc content in its dry film, ROVAL has the strongest anti-corrosion and the highest cost-effective performance among ROVAL product line.



Cross-sectional view of the ROVAL film



Paint film contains a large amount of zinc dusts. (x1000)

Anti-corrosion Effect ★★★★★

<Anti-corrosion Effect Sample>

Hot-dip Galvanizing ★★★★★

Normal Paints ★

Properties



Single Pack Type

Easy to handle
No pot life or mixing required



Color Fading

The paint color naturally weathers with exposure like that of hot-dip galvanized surfaces.



Film Hardness

Hardness of the film improves with exposure.



Electrical Conductivity

ROVAL film conducts static electricity.



| Type | Aerosol 420ml | 2.5kg | 10kg | 25kg |
|------------------------------------|---------------------|-----------------|------------------|------------------|
| Practical Coverage | 0.5m ² | 5m ² | 20m ² | 50m ² |
| Dry to Touch Time (minute, @ 25°C) | 20-30* ¹ | | | |
| Recommended Film Thickness | 80μm* ² | | | |
| Packaging | 24 / case | 4 / case | 1 / case | drum |

*1: At 40μm

*2: Two 40μm coats (Total film thickness: 80μm)

Matching

RoHS

Compliance with the EU Regulations on Organic Chemicals



ROVAL Thinner 0.8kg
The special thinner for R, Rα and RS

Match with R, Rα, RS



ROVAL MC Color Matching Metallic Spray 420ml

Match with R



ROVAL ZC Galvanizing Repair Metallic Spray 420ml

Match with R

Water-based organic zinc rich compound

AQUA ROVAL

Cold Galvanizing Compound

Aqua Roval Cold Galvanizing Compound is a 2 pack water-based anti-corrosion system based on waterborne synthetic resin liquid. Aqua Roval is easy and safe to use, and has little or no odor. It can be applied not only in serious corrosive environment, but also in our daily living environment. Due to its high zinc content (95%) in the dry film, it provides cathodic protection to steel structures and it can be applied either as a single-coat or as primer in a system with other intermediate coating and top coating.



VOC content is 38g/L

Water-based anti-corrosion system greatly reduces VOC content.



Match well with galvanizing surfaces

Aqua Roval can be applied directly on old galvanizing.



No smell

Aqua Roval has little or no odor.



Anti-corrosion Effect ★★★★★

<Anti-corrosion Effect Sample>

Hot-dip Galvanizing ★★★★★

Normal Paints ★



1kg Set



5kg Set



20kg Set

| Type | 1kg Set | 5kg Set | 20kg Set |
|------------------------------------|------------------|------------------|------------------|
| Practical Coverage | 2 m ² | 10m ² | 40m ² |
| Dry to Touch Time (minute, @ 25°C) | 30*1 | | |
| Recommended Film Thickness | 80μm*2 | | |
| Packaging | 4 / case | 1 / case | drum |

*1: At 40μm

*2: Two 40μm coats (Total film thickness: 80μm)

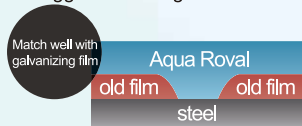
RoHS

Compliance with the EU Regulations on Organic Chemicals

Brushing Aqua Roval directly on old galvanizing surfaces

Aqua Roval can be applied on adhered old galvanized surfaces directly to renew the old hot-dip galvanizing. We suggest brushing the whole surface if the repairing area is large.

※Aqua ROVAL brushed on old galvanizing films does not conduct electrochemical action.



[How to apply Aqua Roval]

Point 01

Surface Preparation

Prepare the metal surface by sandblasting or with appropriate power tools to remove all contamination on the surface such as rust, mill scale and old paints.



Point 02

Remove the oil.

Oil may peel or crack the paint film.



Point 03

Making compound

Pour the liquid part into the container and agitate with a powered tool. Put the powder part into the liquid little by little, keeping stirring the mixture at least 3 minutes until the powder blend into the liquid without any lump.

※ The mixture should be used up within 8 hours.



■ Do not dilute. Only when concentration of mixtures is high, it can be diluted by using proper proportion (0-2 wt%) potable water.

Point 04

Brushing

Use brush, roller to apply two coats. (Each coat: 40μm) Total dry film thickness is 80μm. Do not spread the paint too thin or thick.



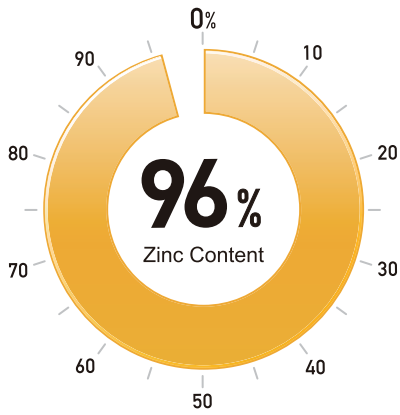
■ Please use special brush for water-based paint.

Better heat resistance and solvent resistance

Achieve high-quality coating system by using together with RV-TOP

EPO ROVAL

Cold Galvanizing Compound



Anti-corrosion Effect ★★★★★

<Anti-corrosion Effect Sample>

Hot-dip Galvanizing ★★★★★

Normal Paints ★



25kg



2.5kg



EPO ROVAL THINNER ※1
0.8kg

| Type | 2.5kg | 25kg |
|------------------------------------|-----------------|------------------|
| Practical Coverage | 5m ² | 50m ² |
| Dry to Touch Time (minute, @ 25°C) | 20-30 | |
| Recommended Film Thickness | 80μm | |
| Packaging | 4 / case | drum |

Heat Resistance

Solvent Resistance



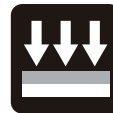
Single Pack Type

Easy to handle
No pot life or mixing required.



Color Fading

The paint color naturally weathers with exposure like that of hot-dip galvanized surfaces.



Film Hardness

Hardness of the film improves with exposure.



Electrical Conductivity

ROVAL film conducts static electricity.



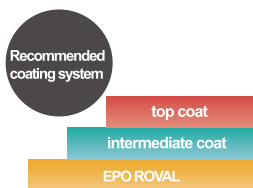
Heat Resistance

24 consecutive hours without abnormal situation at 300°C.
(The highest instantaneous temperature is 450°C)

RoHS Compliance with the EU Regulations on Organic Chemicals

※1 EPO ROVAL THINNER is an exclusive product for fixing viscosity of EPO ROVAL. DO not use ROVAL THINNER. Dilution rate must be less than 5% (weigh ratio)

EPO ROVAL can be used together with top-coat from other companies



Constructing Site
Top coat is being applied on EPO ROVAL

Coating process of iron surface ※ Coating interval (under 23°C)

| Process | Paint | Coating interval |
|-------------------|--|---------------------------------------|
| pretreatment | Prepare the metal surface by sandblasting or with appropriate power tools to remove all contamination on the surface | |
| primer 1 | EPO ROVAL | ≥ 30 mins |
| primer 2 | EPO ROVAL | ≥ 24 hours |
| intermediate coat | Intermediate coat testified by matching experiment ※2 | Time specified by paint manufactures. |
| top coat | Polyurethane and fluorocarbon top coat matching with intermediate coat | |

※2 Serious blistering may occur after some coatings are applied, please do mist coat treatment.

Note: Do not use phthalate, alkyd and other oil-based paint, because they will cause the film peeling off.

Any color you like!

RV-TOP

(Polyurethane Topcoat)

(Special for) Aqua Roval Cold Galvanizing Compound
EPO Roval Cold Galvanizing Compound



20kg Set



5kg Set



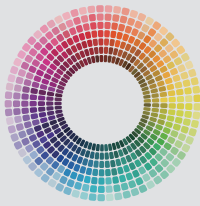
Aqua Roval Cold Galvanizing Compound



EPO Roval Cold Galvanizing Compound

| | RV-TOP(solvent-based) | |
|--------------------|-----------------------|--------------------|
| Type | 5kg Set | 20kg Set |
| Practical Coverage | 31 m ² | 125 m ² |

※ The above data are calculated according to the theoretical value



Color Customizable

The color of RV-TOP can be customized, please consult the technical services department of Roval Company to know detailed information of color customization.

TEL : 021-69156584



Weatherability

Having excellent light maintenance, color maintenance and UV resistance by using pigment with super weatherability.

RV-TOP

EPO Roval

(Aqua Roval)

A complete set of coating system

RV-TOP helps achieve a higher-quality coating system obtaining high anti-rust performance by using in combination with Aqua Roval or EPO Roval.



Impact Resistance

The film shows excellent protective performance with good impact resistance and abrasion resistance.

Application

■ Aqua Roval + RV-TOP (grey)



Household sunshade

■ EPO Roval + RV-TOP (white)



Pipeline

■ Water-based multiple coating system (Aqua Roval +water-based intermediate coating+water-based top coating)



Solvent tank



Stereo garage



Pipeline (right)

■ Aqua Roval is applied as a single-coat



Exterior steel stairs



Pipeline



Patterned steel plates

Anti-bacterial and mildew free compound with strong rust proof performance

ROVAL α

Zinc Rich Compound

Antimildew

Antibacterial

Specialist's First Choice for Galvanization



Anti-corrosion Effect ★★★★★

<Anti-corrosion Effect Sample>

Hot-dip Galvanizing ★★★★★

Normal Paints ★

ALL
Zinc Powder

ALL Zinc Powder

Rα does not contain pigment (aluminium). As the main component of Rα, the particularly processed zinc flakes provide the film with metallic texture and luster.



20kg



1.5kg



420ml

| Type | Aerosol 420ml | 1.5kg | 20kg |
|------------------------------------|-------------------|-----------------|------------------|
| Practical Coverage | 0.4m ² | 3m ² | 40m ² |
| Dry to Touch Time (minute, @ 25°C) | 20-30*1 | | |
| Recommended Film Thickness | 80μm*2 | | |
| Packaging | 24 / case | 4 / case | drum |

*1: At 40μm

*2: Two 40μm coats (Total film thickness: 80μm)

Properties



Single Pack Type

Easy to handle
No pot life or mixing required.



Color Fading

The paint color naturally weathers with exposure like that of hot-dip galvanized surfaces.



Film Hardness

Hardness of the film improves with exposure.



Electrical Conductivity

ROVAL film conducts static electricity.



Antimildew Antibacterial

Activated zinc ions in Rα inhibit mildew and bacterial growth.

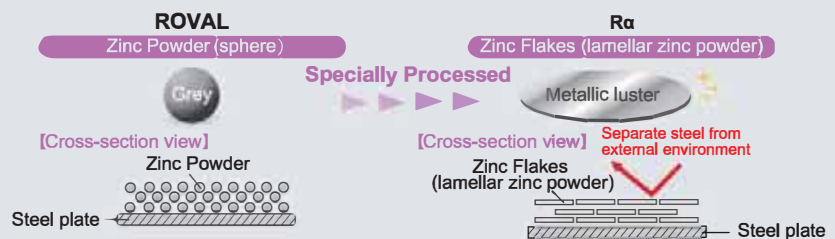
RoHS Compliance with the EU Regulations on Organic Chemicals

Antimildew and antibacterial



Under the excellent barrier protection of zinc flakes, the pipeline brushed with Rα didn't mildew and rust.

Structural Drawing of Rα's Film

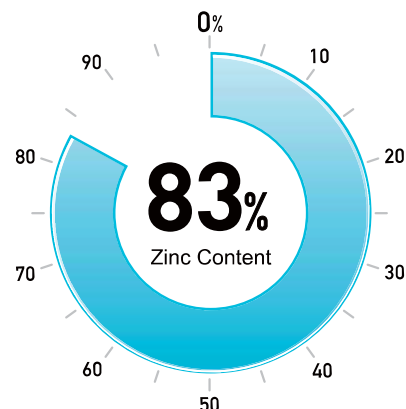


Rα does not contain any pigment (aluminium). The very beautiful silver metallic luster of Rα comes from using zinc flakes (lamellar zinc powder) as the elemental component of Rα against corrosion to steel structures.

Suitable for repairing old galvanizing surfaces or as a topcoat for ROVAL Cold Galvanizing

ROVAL SILVER

Zinc Rich Compound



Properties



Contains Aluminum

Aluminum pigments provide barrier protection to a metal.



Anti-corrosion Effect ★★★★★

<Anti-corrosion Effect Sample>

Hot-dip Galvanizing ★★★★★

Normal Paints ★



Single Pack Type

Easy to handle
No pot life or mixing required.



Color Fading

The paint color naturally weathers with exposure like that of hot-dip galvanized surfaces.



420ml



1.5kg



7kg



20kg



Film Hardness

Hardness of the film improves with exposure.



Electrical Conductivity

ROVAL film conducts static electricity.

| Type | Aerosol 420ml | 1.5kg | 7kg | 20kg |
|---|---------------------|-----------------|------------------|------------------|
| Practical Coverage | 0.4m ² | 3m ² | 14m ² | 40m ² |
| Dry to Touch Time (minute, @ 25°C) | 20-30* ¹ | | | |
| Recommended Film Thickness | 80µm* ² | | | |
| Packaging | 24 / case | 4 / case | 1 / case | drum |

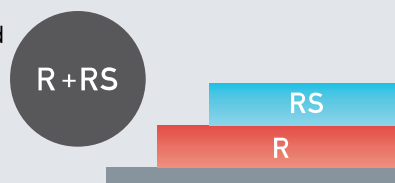
*1: At 40µm

*2: Two 40µm coats (Total film thickness: 80µm)

RoHS Compliance with the EU Regulations on Organic Chemicals

Use ROVAL as primer for better anti-corrosion performance.

To achieve the best anti-rust effect, Roval Cold Galvanizing Compound is highly recommended to be used as primer when using Roval Silver Zinc Rich Compound to do anti-corrosion pretreatment of steel, large-area coating or in severe corrosive environment. If applying Roval Silver Zinc Rich Compound alone without primer, the thickness of the coating film must be larger than 80µm.



Galvanizing Repair Metallic Spray

ZC

Anti-corrosion Effect ★★

69%
Zinc
Content



Color Sample



Theoretical coverage ······ 1m²
 Dry to Touch Time ······ 20-40 minutes
 Recommended Film Thickness ··· 40μm
 Packaging ············ 24 / case

Properties



Power Up!

Reinforce anti-corrosion performance as a topcoat to ROVAL.



Repairing Spray

Suitable for touch-ups of damaged or thinly galvanized surfaces.



Temporal Sheen

Silver sheen color weathers with exposure like that of hot-dip galvanized surfaces.



Anti-corrosion protection

Contains 69% zinc as well as aluminum compounds to do effective anti-corrosion protection.

Application



Color Matching Metallic Spray

MC

(No Anti-corrosion Effect)



Color Sample



Theoretical coverage ········ 3m²
 Dry to Touch Time ········ 15-30 minutes
 Recommended Film Thickness ····· 10μm
 Packaging ············ 24 / case



Spray MC after applying ROVAL R on cut profiles, welds, and non-plated areas for maximum protection.



No anti-corrosion effect.

Weathering is slowed by excessively thick film. Exposure conditions will affect the weathering rate.



Before application



After application
MC applied at the lower left

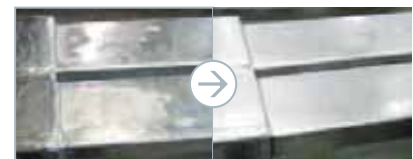


After 6 months exposure

MC has a metallic sheen color and the silver sheen color weathers with exposure like that of hot-dip galvanized surfaces, it is the perfect match to color of galvanizing and it is particularly suitable for gray coating touch-up.

Application

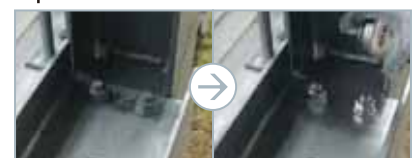
Gray Coating Touch-Up



Before

After

Topcoat for ROVAL R



Apply ROVAL R

Apply MC for color matching

ROVAL vs Normal paints

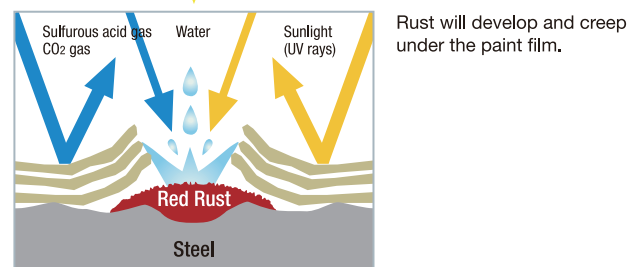
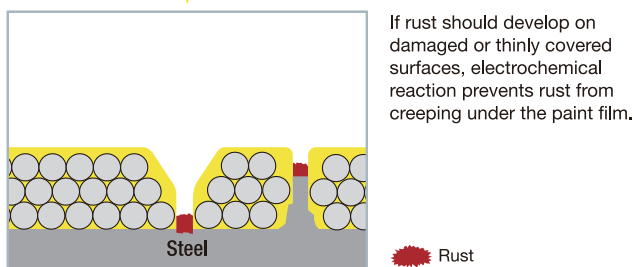
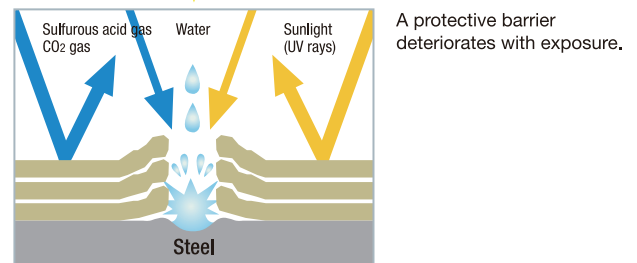
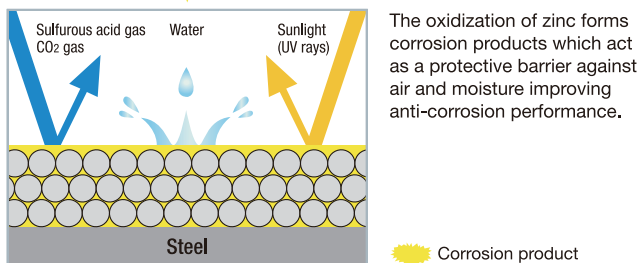
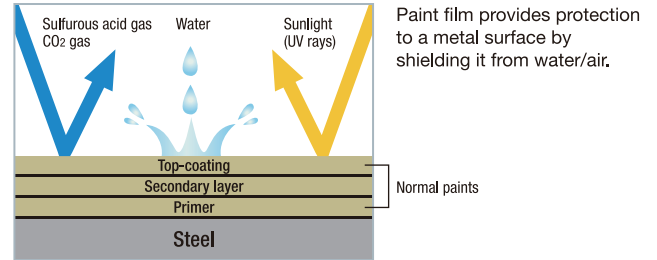
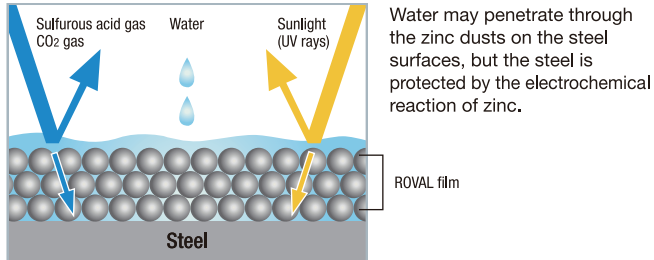
ROVAL

(Anti-corrosion by electrochemical reaction)

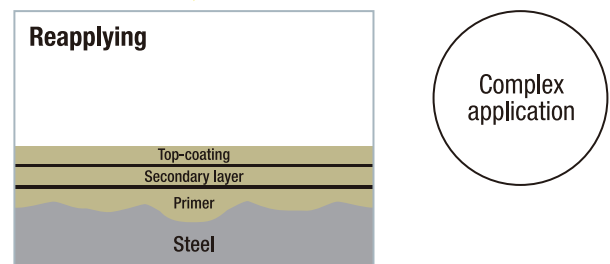
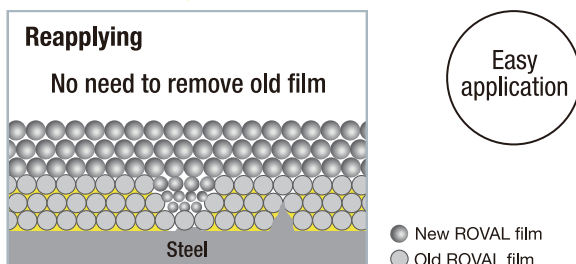
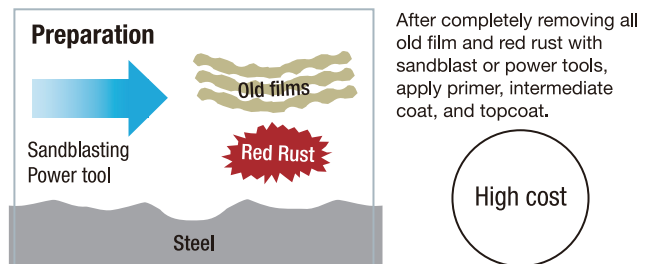
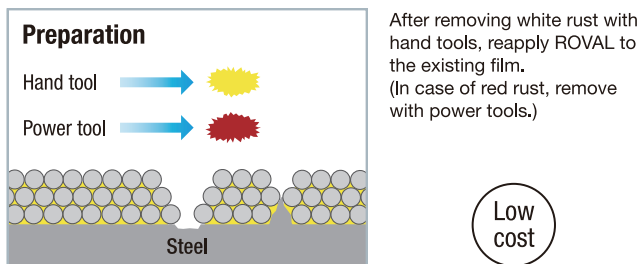
Normal paints

(Anti-corrosion by barrier protection)

Mechanisms of Anti-corrosion



Maintenance



ROVAL vs Other anti-corrosion paints

ROVAL has the distinctive property to stop rust creeping under the film.

We have proven results from a 36-month atmospheric exposure test concluded at Japan Weathering Test Center in Miyako-jima Island testing ROVAL and other companies' paints for anti-corrosion performance.

These results and pictures prove that ROVAL protects steel surfaces from rust creepage with its electrochemical reaction, whereas other paints allowed the rust to spread from the cross-cut areas.



< Miyakojima Island Testing Ground >

Miyakojima Island is located the far southern portion of Japan, with roughly the same latitude as Florida, U.S.A. The island is surrounded by a lot of deteriorating factors such as high temperature, high humidity, strong sunshine, and a salt-rich atmosphere.

The environment is known to be the best for accelerating film deterioration.

Results of Comparison Tests: ROVAL

ROVAL
(80 μ m)

Before exposure



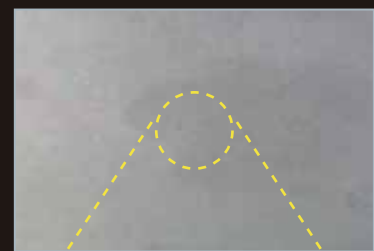
After 36 months exposure



No rust is found.



Expose the steel substrates



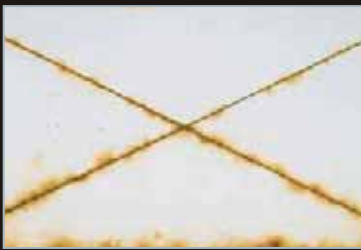
Enlarged photo (cross-cut part)



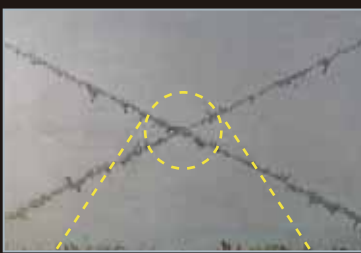
Rust does not spread from cross-cut.

AL vs Other anti-corrosion paints

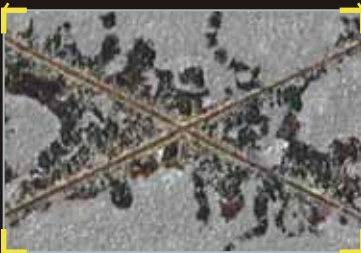
Epoxy paint
+ Urethane topcoat



Rust from cross-cut.

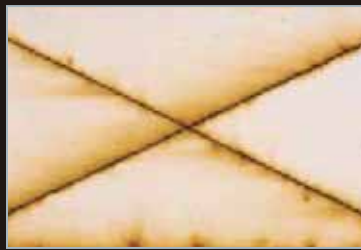


Enlarged photo (cross-cut part)



Rust from cross-cut spreads.

Epoxy paint
+ Fluoropolymer topcoat



Rust from cross-cut.

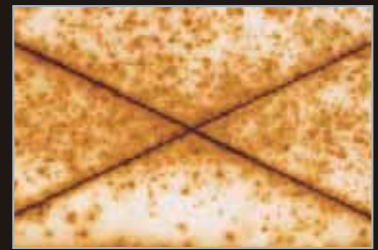


Enlarged photo (cross-cut part)



Rust from cross-cut spreads.

JIS anti-corrosion paint
+ Phtalic topcoat



Rust spread over the substrate.



Enlarged photo (cross-cut part)



Rust is found other than cross-cut.

Anti-corrosion performance of ROVAL is equivalent to the highest grade of hot-dip galvanizing available in Japan.

In order to compare the anti-corrosion performance of ROVAL with those from the hot-dip galvanizing process, corrosion accelerating tests were conducted by the Japan Paint Inspection and Testing Association in accordance with Japanese standard ^④“JIS H8502-1999”.

The results and pictures from the test show that ROVAL has an equivalent anti-corrosion performance to hot-dip galvanizing.

ROVAL has been certified to have equivalent anti-corrosion performance as hot-dip galvanizing by the Council for Construction Technology Review and Certification in Japan

< Salt Spray Test >

Accelerated corrosion testing by spraying salt water.

< Cyclic Corrosion Test >

Accelerated corrosion testing involving cyclic exposure to salt fog, dry and wet conditions.

< CASS Test >

Copper accelerated acetic salt spray test.

*JIS H8502-1999 is based on ISO standards: 4540, 4541, 8407, 8565, 9227, and 10062.

Results of Comparison Test: ROVAL vs Hot-dip galvanizing

ROVAL
(80μm)

Hot-dip galvanizing
(Zinc 550g/m²)

Before testing



Salt Spray Test

2256hrs



Cyclic Corrosion Test

3024hrs



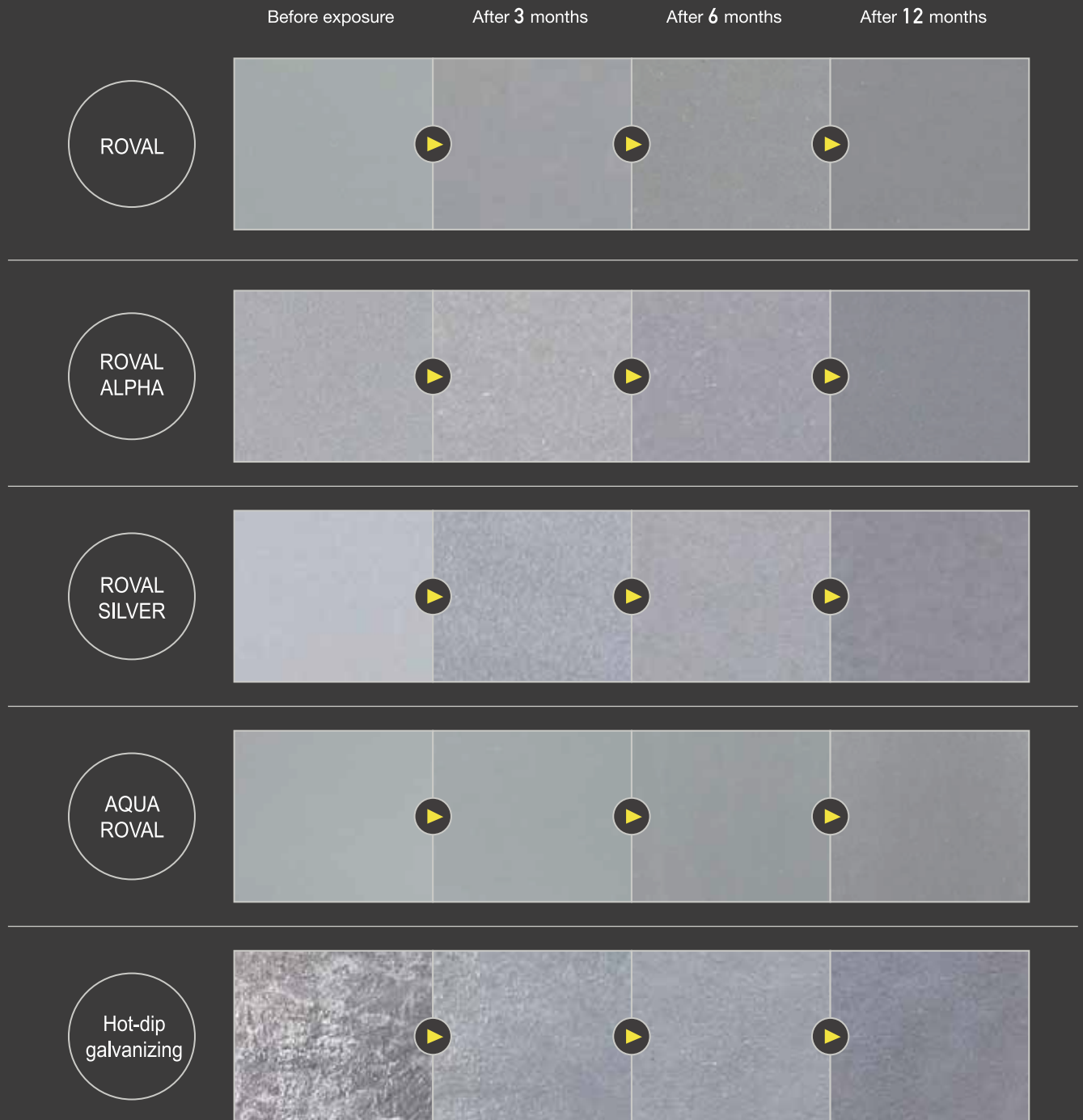
CASS Test

1008hrs



Color weathering of Roval products

The film of Roval products weathers the same as galvanized materials by exposure. This characteristics makes repaired unapparent.



* Deviations can occur between the samples shown, the delivered products and the standard references due to differences in shooting angle, light, and the surroundings.

User Guides

< Tips >

ROVAL has to be applied DIRECTLY to metal surfaces.

The direct contact between the zinc and the metal surface will result in cathodic reaction.

✗ Never use primers.

Primers will compromise the performance of Roval products.


3 important points

Point 01 Surface Preparation



Prepare the metal surface by sandblasting or with appropriate power tools. Remove all contamination on the surface such as moisture, oil, mill scale, rust, and old paints.


Point 02 Adequate Agitation of Product



Agitate the products well to obtain uniform density. **Dilution is not required.**

*Only when the product thickens, use aromatic thinner such as Xylene.

Point 03 Sufficient Film Thickness



Apply two coats. (Each coat: 40µm)
Total dry film thickness = more than 80µm
Do not spread the paint too thin.
 Anti-corrosion performance is proportional to DFT.

Application methods

Brush



E.g. Soft brush

Roller



E.g. Long haired-roller

Conventional/air-less spray



The importance of Surface Preparation

Surface pretreatment directly affect the anti-corrosion performance and service life of coating film.

To get the best anti-corrosion performance, surface pretreatment is very important.

Brushing only after the clean and bare metal surface is exposed out by using sandblasting or power tools to remove the contamination on the meal and galvanizing surfaces.

Results of salt spray experiments under different surface preparation conditions

| | Brushing on the clean and bare metal surface | Brushing after roughly removing the rust by hand tools. | Brushing directly on the rust (without surface preparation) |
|-----------------------------------|---|---|---|
| Before test |  |  |  |
| Salt Spray Test (1008 hrs) |  |  |  |
| | No rust is found | Rust from cross-cut | Rust, blisters and abscission of coating film occurred. |

⚠ Wrong Application



Applying product to rusted surfaces



Applying products to painted surfaces

Applications

From ordinary to extreme
Various ways to use the Roval products



^ Roads



^ Bridges



^ Marine equipment



^ Power stations



^ Pedestrian bridges



^ Buildings



^ Catwalks



^ Lighting towers



^ Steel frames



^ Pipes



^ Ducts



^ Pipelines



^ Gratings



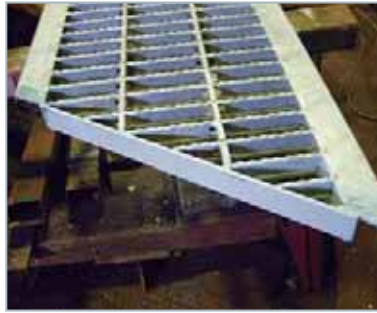
^ Lightning rods



^ Steel gates



^ Un-galvanized areas



^ Cut surfaces



^ Welds



^ Bolts



^ Ditch covers



^ Greenhouses



What if the steel structure becomes old? **Restore it** with **ROVAL!**



Before



After



Before



After



Before



After

Applying ROVAL on worn galvanized surfaces prolongs a life of steel structures. This property leads to the sustainability of steel resources. It is time to switch from "Scrap & Build" to "Recycle."
Let's kick start with ROVAL!

| Global Website |

www.rovalworld.com

| Product & Technical Inquiry |

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ROVAL has obtained ISO9001 quality management system and ISO14001 environment management system

 **ROVAL**

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