



ZINQCOAT-HD.

Product Description

ZINQCAOT-HD is an alternative to hot-dip galvanizing and metallization offering same performance including sacrificial protection. Technology formulated with a high zinc content in a single component ready to use with fast drying. It offers excellent resistance to impact, and immersion. (fresh and saltwater). Recommended for industrial use on new or existing infrastructure in the marine environment, mining, electrical, and transport world. Application up to 99% relative humidity. Applicable on all metals, it can be overcoated if necessary.

General Information

- Unique industrial galvanizing technology of organic zinc, providing an electrochemical bond with 88% zinc in the dry layer
- Provides cathodic/sacrificial protection by the same mechanism as galvanizing
- Provides equal lifetime to hot-dip galvanizing and/or metallization under the same exposure conditions with equal zinc thickness
- Approved to refurbish the zinc protection of hot-dip galvanized or metalized steel structures
- Suitable for immersion with high resistance in freshwater, saltwater, wastewater or a saline environment
- Single pack, designed to provide an excellent performance applied as stand-alone and do not need to be top-coated
- May also be used as a primer in a duplex system with a compatible topcoat (active + passive)
- Can be applied by brush, roller, spray gun, with standard painting equipment
- Ease of application either in a workshop or on-site
- Moisture cured, allows application regardless of the dew point
- Designed for application directly to surfaces with clean tight rust without any loose or flaking materials
- Low VOC
- Excellent adhesion performance without abrasion on all metals including stainless steel, aluminium and weathering steel (Corten steel), also used as metallizing sealer
- Process without metal distortion
- Ability to be welded
- Recommended by the American Galvanizers Association (AGA)
- Meets DEF STAN 02-713 combustion toxicity test
- Meets the performance requirements of ASTM A-780
- Complies with the composition and performance requirements of SSPC-SP20 TYPE II LEVEL 1
- Zinc dust meets or exceeds the requirements for ASTM D520, Type III
- Can be recovered by itself at any time without abrasion
- Can be used to restore cathodic protection on previously hot-dip galvanized or metallized film or to restore existing ZINQCOAT-HD

Performance Characteristics

Characteristics

Zinc Quantity	88% (±2%) in the dry layer
Zinc Purity	±99.995% purity
Ready for use	Single Component
Colour	Matt grey RAL#7005 (not colourable)
Weight	2.50 Kg/dm3 ±0.1
VOC (solvents)	285 grams/Lt (±10)
Flash Point	52°C (125.6°F)
Solvent	Exanol

Drying & Curing Times (application of 125 µm wet)

	1.7°C	25°C	38°C
	(50% relative humidity - RH)		
Touch dry	1.50 hours	45 min.	45 min.
Dry to handle	2.25 hours	60 min.	60 min.
To Recoat (minimum)	4.00 hours	3.00 hours	3.00 hours
(maximum)	Unlimited	Unlimited	Unlimited
Fully cured	15 days	10 days	10 days

The drying process varies depending on temperature and humidity
Relative humidity during the application and drying: minimum 30% maximum 99%



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Performance Characteristics

Recommended minimum Dry ZINQCOAT Thicknesses VS Steel Thicknesses

Steel (mm)	3.2	6.35	12.7	19.1	25.4
Dry Zinc (µm)	50 - 75	100 - 125	125 - 150	150 - 175	200 - 225

In an aggressive environment and/or immersion

Minimum Zinc thickness references: The thickness must be adapted according to the Galvanization Standard ASTM A123

Performances

ZINQCOAT-HD [®]					
Target thickness for Dry Film (DFT)	Thickness of wet Film (WFT) to apply	Estimated coverage in m2/Kg	M2 per 12Kg Container*	g/m2*	m2/Lt*
10µm	15.38µm	26.21	314.50	38,16	65,00
25µm	38.46µm	10.48	125.80	95,39	26,00
50µm	76.92µm	5.24	62.90	190,78	13,00
75µm	115.38µm	3.49	41.93	286,17	8,67
80µm	123.08µm	3.28	39.31	305,25	8,13
100µm (x2: 50+50µ)	153.85µm	2.62	31.45	381,56	6,50
125µm (x2: 75+50µ)	192.31µm	2.10	26.16	476,95	5,20
150µm (x2: 75+75µ)	230.77µm	1.75	20.97	572,34	4,33

* Does not allow for product loss at application, method of application, sand-blasting profile or surface roughness. Depends on part to be galvanized, the loss (= the difference between estimated and serviceable usage) may vary between 10% (steel wall) and 20% (enclosures). ** Coats may be applied wet-on-wet if sprayed

Performances

Performances in hot and cold weather	Between -62°C to +120°C
Application temperature (substrate)	From -5°C to +37°C The curing time may vary depending on the ambient temperature and the relative humidity. Moisture cured, allows application regardless of the dew point. The surface must be dry.
Estimated Performance	Provides a comparable lifetime to hot-dip galvanizing under the same exposure conditions
Resistance in salt water and freshwater immersion	High level of resistance See performance tests ASTM G44-99 52013)
Resistance to Acid / Bases	PH of 5,5 to 12,5
High plasticity	No cracking – Allows the dilatation of the metallic support when bent See performance tests: ASTM D522, tapered mandrel ¼, 180°
Weldability	A thin layer (40µm) can be welded without contaminating the weld (X-ray)

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Performance Characteristics

Performances

Duplex System (If necessary)	Can be covered with most paint products Polyurethane or Epoxy (Avoid Alkyds)
	We recommend applying the paint in a time window of no more than 24 hours after application. The recoating time may vary depending on the humidity, the temperature and the product applied
	If the maximum recovery time is exceeded, apply a thin layer of 50µm minimum of ZINQCOAT-HD, and when dry, apply your paint
Conductivity	The dry film has an excellent conductivity

Tests - Standards

Test Name	Standard	ZINQCOAT-HD	Hot-Dip Galvanized
		Evaluated by ASTM D610 (rust) and ASTM D714 (blister)	
Cyclic Corrosion 10.000 hours	ASTM D5894-10 (cold periods)	Rust. : None – Classified 10 Blister : None – Classified 10	Rust. : None – Classified 10 Blister : None – Classified 10
Immersion corrosion (salt water) Results at 90 days	ASTM G44-99 (2013) Sodium chloride 3.5%	Blister: None – Classified 10 Rust: <0.03% - Classified 9	Blister: None – Classified 10 Rust: 33% - Classified 2

Steel samples used for tests. Surface preparation: SSPC-SP10 / NACE 2 / SA2.5. Products tested: ZINQCOAT-HD versus Hot Dip Galvanization. Application of a single coat of ZINQCOAT-HD without any paint coating

Test Name	Standard	ZINQCOAT-HD®
Pull-off adhesion	ASTM D4541	1775 PSI 12,24 Mpa
Organic Zinc	ONGC-1,181/CAN/ CGSB-1.181-92	CONFORM
Abrasion	ASTM D4060-14 1000 cycles CS10, load 1000g	116 mg
Adhesion	ASTM D3359	5B
Hardness	ASTM D3363	5H
Impact Impactor 0,625 inches	ASTM D2794 100 pounds	NO CRACKS
Flexibility – Folding – Plasticity	ASTM D522, Tapered mandrel ¼, 180°	Resistance: ¼ inch Elongation: 15%
Combustion toxicity	DEF STAN 02-713	CONFORM
UV	ASTM G154-12a	Little effect
Salt Spray	ASTM B117	EXCELLENT
Corrosion Resistance	ISO 12944-6/7253	C5 VH (Very High)
Slip Coefficient and Resistance to Tension Creep Resistance	Research Council on Structural Connections (RCSC) Specification for Structural Joints Using High-Strength Bolts	Meet Class A

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Performance Characteristics

Chemical Resistance / Immersion 30 days

Diesel / Acetone / Urea	Blister : None - Corrosion : None Adhesion : 100% - Hardness : H
Gaz	Blister : None - Corrosion : None Adhesion : 100% - Hardness : 2H
Hydraulic Fluid (Skydrol)	Blister : very little - Corrosion : None Adhesion : 100%
Brake Fluid	Blister : None - Corrosion : None Adhesion : 100%

Recommended Use

Application Surfaces

- ✓ New and Existing Steel
- ✓ Weathered Galvanized Structures
- ✓ Stainless Steel
- ✓ Aluminium
- ✓ Weathered Steel (Corten)
- ✓ Copper
- ✓ Cast Iron and Aluminum

Areas of Usage

- ✓ Marine Environments / Boats / Barges / Docks
- ✓ Bridges / Foot Bridges / Dams
- ✓ Electrical Communications Towers
- ✓ Buildings / Roofs / Stairs / Ramps / Water treatment plants / Water towers
- ✓ Silo tanks / Food factories / Various structures
- ✓ Military: Vehicles / Boats / Armored – Transport: Trucks / Trailers
- ✓ Paper mills / Chemical Plants / Refineries / Mines

Application Methods

General Information

- ☐ The product is ready to use for application, open the pail and mix at low speed until completely homogenized, do not use an automatic paint shaker
- ☐ For drying and curing process to be functional ,a minimum of 30% relative humidity shall be present during application until the coating is dry to handle
- ☐ The application may require more than one coat depending on the dry film thickness of zinc required or the complexity of the design
- ☐ Apply a stripe coat with a paintbrush on the welds, bolts, edges, hard to reach areas, and around of the interface plates, etc
- ☐ The application must be carried out in maximum layers of +/- 125 µm wet per coat and use Exanol thinner at a ratio of 4% up to 10%
- ☐ Do not apply more than 200 µm wet per coat
- ☐ Refer to our drying and curing time table for the application of a second coat
- ☐ The excess thickness >375 µm is to be avoided (eg: the hollow of a stiffener)
- ☐ The use of a wet gauge is highly recommended

Touch-Up (facilities and / or on site

At all times, if touch-ups are necessary, remove the contaminants then apply a generous coat with a paintbrush or a roller and/or a paint gun to, at least, reaching the same thickness as the surrounding layer.

Application with a Brush or Roller

- Ready to use after being thoroughly mixed – Mix Well
- Usually, no dilution is needed. However, it can be diluted with the EXANOL™ to ease the application (maximum of ½ Litre per 12Kg pail)
- Industrial round brush / short pile roller (mohair)
- Can be recoated two (2) hours after dry to touch. The time between coats will depend on the ambient temperature and relative humidity
- On average, we can expect a dry thickness of 40µm per layer. Over thicknesses could increase the drying time and are not recommended
- Practical coverage 6.20m2/Kg per 40mm coat (DFT) or 162 gr/m2

Due the rough texture, never apply the first coat with a roller. Use a brush to fill in gaps and to better cover the surface

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Application Methods

Application with Airless Spray

- Dilute by 4% to 5% with EXANOL™ if necessary (do a pre-test)
- Mix well
- Low Pressure is recommended. Approx. 100 to 150 bar
- Recommended nozzles: 0.012 – 0.020" (0.38 to 0.51mm)
- Clean the equipment properly after use

It is recommended that corners, edges, bolts and screws be stripe coated in advance, before applying a uniform coat.

For spray gun application:

- *It is recommended that all filters should be removed from the spray gun to prevent blockage,*
- *Use short tubes,*
- *The product should be continuously mixed while spraying*
- *Continuous circulation of the product using a (bypass) connector at the spray gun outlet is recommended*
- *Spray equipment should be flushed before and after cleaning with EXANOL Solvent*

Application with Gravity Gun, Pressure Pot HVLP

- Dilute 4 to 10% with EXANOL™ (pre-test recommended)
- We recommend using a needle 1.8-2.0 mm nozzles for gravity guns. Pressure 3 to 4 bar.
- Conventional spray gun, by suction feed are not recommended (Product too heavy)
- Estimated coverage: 7.05m²/kg at 40mm (DFT) (142gr/m²)
- Practical coverage: 6.20m²/kg per 40mm (DFT) (162gr/m²)
- Successive coats may be applied (wet-on-wet)

Disclaimer

The ZINQCOAT-HD® is not designed to be applied in an excess thickness of more than 375 µm and shall be applied in layers of +/- 125 µm wet. Over thicknesses may cause small cracks or a granular effect on the treated surface. In order to not affecting the quality of the protection as well as its aesthetic, it is necessary to perform touch-ups

For dilution, the use of the EXANOL as thinner is the only product approved. All other products will result in a fatal effect on the chemical composition of the product. Paint equipment can be cleaned with any gun washer solvent as long as it does not leave a residual factor.

Surface Decontamination (Visible and Invisible Contaminants)

Surfaces must be free from grease, cutting oils, drilling oils, or any other visible and invisible contaminants.

Do not use EXANOL for surface cleaning. The use of products that leave no residue on the surfaces is required.

SURFACE SALTS: In the presence of potentially and geographically salty environments, tests must be conducted.

Salt presence shall be below 7µg/cm².

If necessary, use CHLOR-RID® or HOLDTIGH® products. Any other products used must be approved in writing by Exa Contech.

Following decontamination, proceed with the recommended surface preparation based on the substrate to be protected.

Note: In the case of an industrial, commercial or institutional project as well as in the presence of any special conditions (immersion, aggressive environment, saline) these data MUST BE adapted, contact our technical support +365 79 72 44 44 or by email exa@exacontech.com before application

New or Existing steel

Remove contaminants before proceeding with surface preparation. (See "Surface Decontamination" section)

The surface must be clean and free from friable rust, flash rust, mill scale, and corrosion (black iron oxide) that shall be cleaned to sound iron.

Mill Scale: It must be removed by ABRASION or chemical stripping (ACIDS).

Surface preparation:

(SSPC-SP3) Power Tool Cleaning – Small parts ***Counter to this specification, the mill scale must be removed.

(SSPC-SP7 / NACE 4) Brush-off Blast Cleaning – Indoor exposure

(SSPC-SP6 / NACE 3) Commercial Blast Cleaning – Outdoor exposure

(SSPC-SP10 / NACE 2) Near-White Blast Cleaning – Immersion

(SSPC-SP8) Chemical Stripping – All mill scale shall be removed.

Aluminium, Stainless Steel or Copper

The surface must be free of grease substances, dust, oxide, friable material or other contaminants

There is no need to abrade surfaces when considered bare and clean

After cleaning, apply directly when the surfaces are dry

Contact our technical support for more specifications +356 79 72 44 44 before application

Existing Paint Coating

Perform adhesion testing on the paint remaining after cleaning (ASTM D3359)

Perform a test on a small area to ensure products compatibility

Never apply to bituminous coatings and aluminum paints

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Application Methods

New Hot Dip Galvanization or Metallization

The surface shall be free of rust dust, friable material, oils, grease or other contaminants, including surface salts and the presence of zinc oxide in white powder or crust
 For freshly galvanized surfaces (0-1 year) Check for presence of passivating treatments on galvanizing (e.g., Chromating): "Chromating" refers to the treatment of galvanized parts to prevent the occurrence of wet storage stain. The presence of chromates or other passivating treatments is detected by using a solution of copper sulphate. (SSPC SP16)
METALLIZATION: The first coat must be a mist coat diluted between 20-30% with EXANOL[™] solvent to seal the surface porosities. (less than 25µm wet)
 Contact our technical support for more specifications +356 79 72 44 44 before application

Existing (Old) Hot Dip Galvanization or Metallization

The surface shall be free of rust dust, friable materials, oils (cutting and drilling oils), greases or other chemical contamination including surface salts and the presence of zinc oxide in white powder or crust.
 Contact our technical support for more specifications +356 79 72 44 44 before application

Concrete

Before the installation of galvanized steel to concrete you can apply a generous coat of ZINQCOAT-HD® on clean concrete

Casting (Aluminium and Steel)

The surface must be free of rust dust, brittle material, oils (cutting and piercing oils), grease or other chemical contamination
 Sandblast (SSPC-SP6), (SSPC-SP3 for small areas)
 Clean with compressed air, then apply directly
 Contact our technical support for more specifications +356 79 72 44 44 before application

Storage

Keep in a dry area, between 5°C and 20°C (41°F to 68°F). Keep away from direct sun exposure. Unopened pail shelf life: 24 months
 Opened pail: Few months in standard storage conditions

Packaging Format

1kg, 6 kg and 12 kg pails

Safety

Consult the safety data sheet before use. Use adequate personal protective equipment in accordance with regulations

The information contained in this document is not exhaustive. Ensure to also consult the material safety data sheet of the product as well as to follow any application protocol or other specific instructions that may be issued by Exa Contech. Anyone using the product in a manner other than that recommended (without prior written confirmation from Exa Contech as to the suitability of the intended method of use), is being exposed to damage to properties or persons and does so at his own risk. All our recommendations or product statements are correct to the best of our knowledge, but Exa Contech cannot guarantee neither the quality or condition of the application surface nor the other factors in the use and application of this product that may affect its performance. Accordingly, unless confirmed in writing by Exa Contech, any warranty as to the performance of the product or the achievement of specific results is expressly excluded. Exa Contech will not be liable for any loss or damage incurred in connection with storage or use of the product not in accordance with the instructions issued by Exa Contech. All other warranties or representations, express or implied, by law or otherwise, including, without limitation, any implied warranties of merchantability or fitness for a particular purpose, are hereby expressly excluded. The information contained in this document is subject to change based on the evolving knowledge of the product and any improvement thereof. It is the responsibility of the user to check with a representative of Exa Contech that it has the current version of this technical data sheet and of the material safety data sheet before using the product. All sales are subject to our terms and conditions of sale, available from a representative of Exa Contech.

Sales: EXA CONTECH LTD • Phone: +356 79 72 44 44 • Email: exa@exacontech.com ▪ sales@zinqcoat.com