



*Protect your assets*



# *Corrosion Passivator*

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# About nC

## Protect your assets

When we started working on anti corrosive surface techniques in 2010, I was asked if nC could come up with a solution for the Maritime Innovation Platform, to treat seagoing vessel ballast tanks against corrosion, without having to do any sandblasting work. The winning result was the nC Corrosion Passivator. For a fraction of the cost and without unhealthy and labor-intensive work, 1200 cubic meters of tank capacity per day could be treated against corrosion.

The years of experience in the maritime sector of our project managers and the further development of our innovations by our chemists together with several of our customers have led to proven and award-winning solutions in the field of Corrosion Passivation, Thermal Insulation and the Protection and Sealing of surfaces in both inland- and maritime shipping. As founder of nC, I am proud of that, our teams in the Netherlands, Germany and Southeast Asia are proud of that, and our end users regularly express their appreciation for that.



With our products we extend the lifespan of ships, machines and structures around the world and improve traditional processes in maintenance. This brochure gives you an insight into how that can work for you. Happy reading and new ideas!

### Rob van Hoorn

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# Parties that trust the products of nC



# Corrosion Passivator

## Stops & prevents corrosion

### Corrosion passivation in short

nC Corrosion Passivator interrupts the connection between the metal and corrosion, by forming a bond with the metal itself. This connection then acts as a protective layer and makes the metal immune to corrosion influences such as heat, moisture, salt and oxygen. Corrosion passivation is possible without the need for sandblasting or sanding, and a dry surface is not required. Depending on environmental influences, the metal remains protected from corrosion for 6 to 15 years.



- ✓ Stops and prevents corrosion
- ✓ No sanding or sandblasting required
- ✓ Application on wet and dry surfaces
- ✓ Effective up to 15 years
- ✓ Quick and easy to apply

## Product overview



### Fluid

Directly-Over-Rust corrosion passivator, suitable for floating, brush or spray applications in tanks, cavities, hollow structures and rudders. Solvent-free.



### Primer

Directly-Over-Rust corrosion and metal passivator. Stops corrosion and works excellent as a base for traditional systems. Solvent-free.



### **Undercoat 21**

Directly-Over-Rust film-forming corrosion and metal passivator. Undermines corrosion with extreme creep properties. Application by floating, rolling or spraying.



### **Zinc Primer C5**

Zinc Primer forms an impenetrable active galvanic corrosion inhibitor film that remains effective even when the treated surface is scratched. Very fast drying.



### **High Temperature Primer (HTP)**

Stops and prevents corrosion with zinc anodic sol-gel technique. Resistant to temperatures up to 460°C. Also resistant to electric welding. Very fast drying.



### **Cold Alloy (CA)**

A technology that uses cold alloy to replace galvanizing or zinc processes. It converts the top coat to passivated metal. Resistant to temperatures up to 1300°C. Very fast drying.



### **Heavy Duty (ZB)**

Fiber-reinforced epoxy technology that provides superior resistance in the harshest conditions such as impact from falling rocks and sliding containers. Extremely corrosion resistant.



### **Steel Wire Passivator**

Passivates and lubricates steel wire with lasting smooth protection. Penetrates to the core. Also suitable for wet surfaces. Not harmful to the environment.

**Read more about corrosion passivation on  
[www.nc-protect.com](http://www.nc-protect.com)**



**Fluid**

**Primer**

**Undercoat 21**

**Zinc Primer C5**

<b>Components</b>	1	1	1	1
<b>Prepwork</b>	None.	Surface <b>MUST</b> be rusty and moist or wet.	Remove dirt, grease and loose paint and loose rust.	Blast Sa1 or higher.
<b>Application</b>	Brush, Roller, Spray, Floating	Brush, Roller, Spray, Floating	Brush, Roller, Spray	Brush, Roller, Spray, ESS
<b>WFT* in <math>\mu\text{m}</math></b>	500	>60	20	60 per laag
<b>DTT/ CT**</b>	4h/4h	2h/4h	1h/2h	15m/24h
<b>Painting over required?</b>	Only possible with nC Protect 4410 tie-coat	Indoors: No Outdoors: Yes	Yes	Customary
<b>Protects for</b>	<8y in salt water 5 - 15y in fresh water.	<10y when painted over / <2y without paint finish	<10y if painted over.	<8y in salt water 15y in fresh water.
<b>Consumption</b>	1l/m <sup>3</sup>	12-15m <sup>2</sup> /l	10-12m <sup>2</sup> /l	4½m <sup>2</sup> /kg
<b>Storage</b>	>15yr / <50°C	2yr / <35°C	2yr / <30°C	1yr / <25°C

\* Wet Film Thickness

\*\* Dry To Touch / Cure Time



**High Temp Pr.**

**Steel wire rope**

**Cold Alloy CA**

**Heavy Duty HD**

**Chemical Resist**

1	1	2	2	2
Blast Sa1 or higher.	Remove dirt, grease and loose paint and loose rust.	Bare metal Sa2.5 blasted, grease-free, or use NCP Primer underneath.	Bare metal, blast Sa2.5, or use NCP Primer underneath..	Bare metal Sa2.5 blasted, grease-free, or use NCP Primer underneath.
Brush, Roller, Spray, ESS	Brush, Roller, Spray, Bath	Brush, Roller, Spray, ESS	Brush, Roller, Spray	Brush, Roller, Spray
100	-	40	130 to 260	130 to 260
45m/3h	4h/24h	¾hr/1½hr	2hr/16hr	6u/6u
Customary	No	Indoors: No Outdoors: Yes	No	No
<8y in salt water 15y in fresh water.	Appr. 5 y	<10yr when painted over.	<10yr in system with any NCP Primer	<10yr in system with any NCP Primer
4½m²/kg	2% to cable weight	20 - 30m² / kg	3 - 5m²/kg	3,8 - 7,7m²/kg
2yr / <25°C	>15yr	1 yr/<35°C	1yr / <30°C	1yr / <30°C



# nC Corrosion Passivator Fluid

## 2. Rust removal? Not necessary

Corrosion Passivator is not a paint but a metal treatment. As a result, rust removal is not necessary, the surface does not need to be dry. The product is solvent-free.

## 1. Passivates metal and does not transform rust

nC Corrosion Passivator binds into the metal, keeping the metal protected even after existing rust loosens. In fresh water up to 15 years, salt water up to 8 years.





### **3. Fast application by floating**

Floating is an effective and fast process to achieve full coverage, even in practically inaccessible areas. A trained team of two people can passivate up to 8 ballast tanks in one day.

### **4. Dry end result No permanent greasy surface**

nC Corrosion Passivator Fluid uses demineralized wool grease as a carrier. Evaporation completely removes the grease layer, leaving a dry and passivated surface.

### **5. Dry surface? Not necessary!**

nC Corrosion Passivator Fluid can be applied directly to both dry and wet surfaces. You don't need to heat or blow dry the surface before treatment. You can get started right away.

# Tanks

## Ballast tanks & peaks

Save time and maintenance costs by treating your ballast tanks, drinking water tanks and peaks with nC Corrosion Passivator. Sandblasting or rust chipping is not necessary. nC Corrosion Passivator can easily be applied directly over rust. This can significantly save time and costs. In addition to brushing, rolling and spraying, ballast tanks and peaks can be treated very quickly and thoroughly by floating.

### Long-term protection

nC Corrosion Passivator chemical bonds with the metal. This keeps the metal protected from corrosion influences such as heat, moisture, salt and oxygen for 5 to 15 years.



### Fast and complete coverage

In addition to brushing, rolling or spraying, nC Corrosion Passivator can be applied by floating. This allows quick 100% coverage, even in practically unreachable areas.

### Safe for people and the environment

nC Corrosion Passivator is safe for people and the environment. It contains no solvents and therefore does not build up gasses in enclosed spaces. Ask about the certification.



### Drinking water tanks

Drinking water tanks are also eligible for corrosion passivation. By using the combination nC Corrosion Passivator and nC Protect Sealant, a food-grade surface is created. A drinking water tank can be treated, ready for use in 1 day at 50% of the usual cost.

# Project Report

## Shipping company MSG - Corrosion passivation of tanks

The ballast tanks of the entire barge MSG Babetta, of shipping company MSG, were passivated with nC Corrosion Passivator Fluid. 180 meters in length, finished in just 4 hours!

### The benefits of corrosion passivation for the MSG Babetta:

- Normally after rust removal, fly rust appears quickly. By using the floating application technique, the MSG Babetta was ahead of the fly rust.
- No time was wasted by sandblasting or corrosion removal, which saved weeks of work.
- Sandblasting is not necessary with metal passivation. This reduces waste, costs and provides a safer work environment.
- nC Corrosion Passivator can be applied directly to wet surfaces.
- Corrosion passivation on rust prone areas prevents recurring corrosion.
- Floating has a much better yield per liter than conventional paint systems. Savings around 40%, up to 60%.
- Corrosion passivation can be done while sailing.

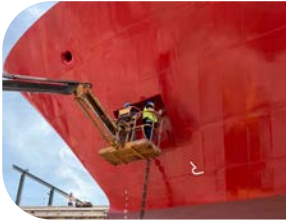


Read the entire report and more information at [nc-protect.com/projects](https://nc-protect.com/projects)





# Other applications



## Ship hull

Often a ship's hull has places where corrosion is a recurring problem, such as the waterline, portholes or sink holes. With nC Corrosion Passivator, our customers easily protect these spots, preventing rust for years. In addition to the hull of the ship, it is possible to passivate frames and other sheet metal parts thoroughly and quickly.



## Pipes

Corrosion is a common problem for pipelines, exhausts and sprinkler systems. Both the outer and inner walls of pipelines can be treated with nC Corrosion Passivator. Application by floating can easily and safely treat the inside of pipelines.



## Welds

Corrosion occurs over time around both new and old welds. With the help of nC Corrosion Passivator this process can be stopped or prevented. For example, our Cold Alloy CA passivator can withstand temperatures up to 1300°C.



## Room floors & hatches

Room floors and hatches are constantly subject to load. This is why we have developed nC Corrosion Passivator Heavy Load reinforced with basalt fibers especially for this purpose. Through spot repair or by spraying, the ship's floor can be treated quickly and thoroughly.



## Steel wire ropes

Effective for both new and used steel cables. The steel cable is placed in a bath or injected with nC Steel Wire Rope Lubricant & Passivator. The technique penetrates to the core creating a permanent super-smooth, anti-corrosive coating that protects for years. Applicable, directly on the wet (salt) cable.



## 2013 till today

At Fugro Marine Services, 7 ocean going vessels have been treated with nC Corrosion Passivator on hull, FWT and BWT areas

**Job Pannekoek**  
**Technical Superintendent Fugro**

*“Over the years, nC Corrosion Passivator has proven to be a reliable and cost-effective solution against corrosion.”*



# Thermal Insulation

## Sprayable insulating coating

### In short

nC ProTherm is a series of thermally insulating coatings that chemically adhere to the substrate. In addition to the insulating effect, nC ProTherm is anti-corrosive, fire-resistant and sound-absorbing and can be applied easily and quickly without primer by brush or spray. The surface does not need to be cooled down, so application is possible while machinery is in full operation. nC ProTherm has been developed in such a way that the same insulating value as traditional insulation materials can be achieved with low layer thicknesses.



- ✓ Thermal insulation
- ✓ Sound-damping
- ✓ Fireproof and flame extinguishing
- ✓ Anti-condensation
- ✓ Adheres directly to any material
- ✓ Easy, one-layer application

## Product overview



### ISO-X

Sprayable thermal insulating coating with extreme adhesion to all surfaces. In addition to the insulating effect, nC ProTherm ISO-X is also fire-resistant and sound-absorbing. Lambda 0,0222. Coating thickness < 15 mm.



### CUI-X

Sprayable thermal insulating coating with extreme adhesion to metal. In addition to insulating, nC ProTherm CUI-X is also fireproof, soundproof and corrosion resistant. Lambda 0.0222. Fire class B-S0-d0.



#### **CUI-HTF**

Sprayable thermal insulating coating with extreme adhesion to metal, suitable for surfaces up to 280°C. Fireproof, soundproof and corrosion resistant. Lambda 0.0222. Fire class B-S0-d0.



#### **FIRE-X Advanced**

Thermal insulating coating and fire barrier in one. Resistant to temperatures up to 1300 °C. Extremely fast drying.



#### **dB-X**

Sprayable acoustic insulating coating with extreme adhesion to all surfaces. Reduction dB(A) by 5-8 dB at different frequencies.



#### **Condensation-X**

Sprayable anti-condensation coating with very strong adhesion for all materials. Suitable for vibrating surfaces, water absorption of 410-640 gr/m<sup>2</sup>.



#### **Safe-Touch**

Insulating coating developed to achieve touch safety of a hot or cold surface with a thin layer of a few millimeters. Operating range -280 - 280°C.

**Read more about thermal insulation at [www.nc-protect.com](http://www.nc-protect.com)**

# Applications



## Pipes

Insulating (pipe) piping with sprayable insulation provides both thermal insulation and protection against burns. nC ProTherm has a high insulation value ( $\Lambda$  0.0222) at layer thicknesses ranging from 3 mm to 15 mm. In addition, the quick application, good visual control of the condition of the pipes under the insulation and the ability to repair quickly (after fitting a new valve or meter) are important advantages for our customers.



## Tanks

The outer sides of fuel tanks as well as product tanks can be excellently insulated with nC ProTherm insulating coatings. This provides great energy savings if the tank contents need to be heated. In addition to thermal insulation, nC ProTherm also offers fire-resistant properties.



## Ship's accommodation & sleeping quarters

nC Protherm coatings offer solutions for thermal insulation, fire protection, soundproofing and condensation. The products adhere directly without primer to a variety of materials. This allows you to easily apply the benefits of thermal insulation or sound damping coatings on board, among other things..



## Engine room

With our nC ProTherm solutions, the engine room can be thermally and acoustically insulated as well as made heat or fire resistant. Even hot surfaces, such as steam pipes, outlets or water pipes are made safe to touch by using our specially developed Safe Touch variant with a layer thickness of up to 5mm, preventing burns or material melting.



## Deck & Hull

Condensation on board is often an annoyance. It can lead to mold in the home or cargo space. Our specially developed Condensation-X can prevent this with only 2 mm layer thickness. Should you require other properties in addition to anti-condensation, such as soundproofing or fire resistance, we will be happy to advise you on the right ProTherm variant.



## Shutters

Temperature differences between cargo and ship cause condensation. This can cause rust spots, allowing rusty water to drip onto the cargo. With a combination of nC Corrosion Passivator and nC ProTherm, this is easily solved. The strong anti corrosive effect and the highly adhesive and flexible nC Protherm coating protects your hatches and cargo from the effects of condensation.

# Project report

## MSC – Thermal insulation of steam and condensation pipelines

The steam lines and condensate lines of the MSC Clementina F are protected against heat losses where the surface temperature of these lines is 155°C is reduced to 43°C with a layer thickness of 9 mm nC ProTherm CUI-HTF thermal insulating coating. This leads to cost savings and safe working practices.

The steam lines and condensate lines aboard the Clementina F have been relocated and not yet insulated. The surface temperature is 155°C. This causes heat loss and possibly results in burns. The pipes are quite difficult to reach.

Insulation with cladding or mattresses would become complicated and also take up a lot of space. This is considered undesirable in connection with see-throughs and freedom of movement to open nearby manhole covers, for example. To meet the requirements, MSC chooses sprayable nC ProTherm thermal insulating coating to install insulation and safe-touch.

### Benefits of thermal insulation with nC ProTherm CUI-HTF for MSC Clementina F:

1. Drop in surface temperature of 155°C to 43°C at 9mm layer thickness saves energy consumption and CO2 emissions;
2. Surfaces are safe to touch;
3. Green solution without much consumption or material losses (cutting losses like traditional solution are not there);
4. Long-term thermal insulation, nC guarantees 15 years on function in this setting;
5. Long-term corrosion protection, nC guarantees 7 years in this setting;
6. Long-term adhesion;
7. Fast application without a lot of prerequisites, "hassle" or cleanup work;
8. Good visual inspection on pipe possible, pipe is not hidden behind mattresses, wool or cladding;
9. No high costs and waste in any future changes to piping system;



Read the whole story  
and more at  
[nc-protect.com/en/projects](http://nc-protect.com/en/projects)



**ISO-X**



**CUI-X**



**CUI-HTF**



**FIRE-X**

<b>Components</b>	1 part dry in 3 parts wet	1 part dry in 3 parts wet	1 part dry in 3 parts wet	1
<b>Prepwork</b>	Dust and grease free surface. Protect stone and concrete from absorbing.	Remove dirt, grease and loose paint and loose rust	Remove dirt, grease and loose paint and loose rust	Dust and grease free surface. Protect stone and concrete from absorbing.
<b>Application</b>	Spray large areas, brush small areas	Spray large areas, brush small areas	Spray large areas, brush small areas	Spray
<b>WFT*</b>	4 - 15 mm	4 - 15 mm	4 - 15 mm	8 - 20 mm
<b>DTT/ CT**</b>	8h/12h	8h/12h	8h/12h	30min
<b>RAL</b>	<150kg: RAL9010 >150kg: All	<150kg: RAL9010 >150kg: All	<150kg: RAL9010 >150kg: All	RAL9001
<b>Lambda</b>	0.022	0.022	0.04	0.061
<b>Consumption</b>	370gr per m2 per 1 mm coat	450gr per m2 per 1 mm coat	500gr per m2 per 1 mm coat	700gr per m2 per 1 mm coat
<b>Storage</b>	1yr / <25°C	1yr / <25°C	1yr / <25°C	5yr / <35°C

\* Wet Film Thickness

\*\* Dry To Touch / Cure Time





**dB-X**



**Condens.-X**



**Safe-Touch**

1 part dry in 3 parts wet	1	1 part dry in 3 parts wet
Dust and grease free surface. Protect stone and concrete from absorbing.	Dust and grease free surface. Protect stone and concrete from absorbing.	Dust and grease free surface. Protect stone and concrete from absorbing.
Spray large areas, brush small areas	Spray large areas, brush small areas	Spray large areas, brush small areas
5 - 18 mm	1 - 3 mm	3 - 6 mm
8h/12h	4h/8h	8h/12h
<150kg: RAL9010 >150kg: All	<150kg: RAL7024 >150kg: All	<150kg: RAL9010 >150kg: All
0.06l	0.06l	0.022
350gr per m2 per 1 mm coat	450gr per m2 per 1 mm coat	500gr per m2 per 1 mm coat
1yr / <25°C	2yr / <25°C	1yr / <25°C

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