



*Single component moisture curing polyureas
Best performing corrosion resistant coatings
Marine & protective coatings brochure*



Bridges



Floors



Hydro



Pulp & Paper



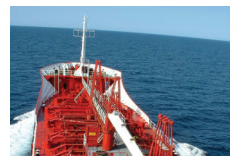
Utilities



Petro Chemical



Waste Water



Marine



Offshore



Locks & Gates



Theme Park



Pilings & Piers



General Construction



Tanks

MCU-coatings® for different applications

MCU-Coatings® produces world's best performing Single Component Moisture Curing Polyureas.

How does the MCU-Coatings® Technology reduce your Total Project Costs?

When you make a project cost estimation comparing multiple coating systems, it is hardly a matter of coating material cost. It is a matter of:

'short term costs' including 'Total Material Cost' +
'Implementation Cost' + 'Indirect costs'

+

'long term costs' depending on the 'Long Term performance'
of the chosen coating system

The major short term direct costs like i.e. labour, materials, equipment,... primarily depend on 'Time' and 'Quantity'. The short term indirect costs like i.e. shut down, re-blast, etc. can far exceed any contingency in project cost, primarily depend on 'Time'. The 'Quality' and even more the 'Quality Assurance' properties of the chosen coating system are decisive for the 'Long Term Performance' and future maintenance and re-coat.

Due to the revolutionary properties of the MCU-Coating's Single Component Moisture Cure Polyurea technology, "MCU-Coatings" is able to offer you a coating system that:

1. Saves 'Time'
2. Reduces 'Material Costs'
3. Guarantees 'Fastest Project Completion Time'
4. Maximises 'Quality Assurance'
5. Has proven superior 'Long Term Performance'

How is that ALL possible?

1. 'Time' is money!:

Major projects around the world have proven that the lack of surface tolerance- and weather restrictions are THE major causes for project delays and loss of 'TIME'. Weather delays, where most other coating technology have to STOP painting, MCU-Coating's revolutionary moisture cure technology continues saving 'TIME' and 'MONEY' on any individual Time related cost. MCU coatings can be applied in any climate around the world, day and night. In 1988, "MCU-Coatings" managed to develop a stable one component moisture cure polyurea coating which eliminates most of the weather restriction and also the limitations for the surface tolerance.

Have a look at the comparison between MCU-Coatings & traditional systems in Table 1: Time is money!

2. Quality assurance

A coating system with less restrictions like the MCU-Coatings' one component moisture cure technology logically guarantees a higher QUALITY ASSURANCE with drastically reducing the chances for PRE-MATURE FAILURE.

Have a look at the comparison between MCU-Coatings & traditional systems in Table 2: Quality Assurance.

3. Thin Film Surface Tolerant Technology:

With MCU-Coatings, typically, only 60% of the total DFT is required to meet or exceed the performance of a typically used competitive high performance system reducing paint cost and VOC emissions. The higher surface tolerance of the MCU-Coatings coatings typically reduces the surface preparation time, material and equipment costs.

Have a look at the comparison between MCU-Coatings paints & traditional systems in Table 3: Thin Film Surface Tolerant Technology.

4. Quality

Extensive testing and 25 years field performance have proven that the MCU-Coatings' single component moisture cure polyurea coatings out-performs the best performing and most common used high performance coating systems used in the last 50 years, including inorganic zinc primers, coal tar epoxy, lead based primer, etc.

The five most important causes of corrosion are Cracking, Chemical attack, Poor long-term adhesion, UV chalking, Blistering, and Erosion

MCU-Coatings “Don’t Crack”!

MCU-Coatings’ products are based on a 100% pure polyurethane resin. It is not comparable to traditional 2 component acrylic PU coatings, which contain only 20% - 30 % pure PU resin.

MCU-Coatings combines durable flexibility with high impact resistance and outstanding abrasion resistance. The technology is used to make products like the soles of sport shoes which will remain flexible durable for years, as well as heart valves, car interiors.

Bridge structures coated with MCU-Coatings in harsh marine environments show no visible cracking after more than 23 years of exposure. Outstanding abrasion resistance using thin film MCU-Coatings’ technology was proven on decks of RORO vessels from the largest ship owner. A 150µm MCU-Coatings system outperformed ceramic and high solid epoxy systems at more than 10 times our film thickness. These RORO vessels load 60 ton containers on steel wheels resulting in extremely high impact and fast abrasion. After 1 year of testing, MCU-Coatings was the only in tact system.

What makes MCU-Coatings coatings “Chemical Resistant”?

The pure PU resin used in MCU-Coatings paints has also proven an outstanding chemical resistance. Just like vinylester and silicones, pure polyurethanes are known to have a good chemical resistance. The higher chemical resistance of the used raw materials combined with high cross linking of the moisture cure technology makes a very chemical resistant product. This is the explanation for the success of MCU-Coatings systems used in chemically harsh environments like in the waste water-, chemical, petrochemical and pulp- and paper industry.

Where have MCU-Coatings coatings proven their “Excellent UV resistance”?

Tropical UV exposure testing have proven a UV resistance of 95% after 36 months of exposure. Offshore structures coated for the various Coast Guard authorities in safety colours have proven perfect colour stability and UV resistance after 10 years of exposure.

MCU-Coatings manage to “Resist Blistering”!

MCU-Coatings uses Micaceous Iron Oxide in primer, intermediate and topcoat. MIO creates a designed permeability into the coating. This means that moisture damp is allowed to penetrate, but the structure also allows vapour to dissipate without forming blisters. This technology allows for high film builds also makes the coating more tolerant to salt contaminated substrates.

MIO also improves:

1. Film build over sharp edges
2. UV resistance
3. Intercoat adhesion
4. Crack and craze resistance
5. Durability of the coating

MCU-Coatings has a solution for all of the most important causes of corrosion proving superior corrosion resistance compared to traditional paint systems.

Other interesting properties of MCU-Coatings®:

MCU-Coatings ‘Thin film technology’ works:

Testings performed by Government Agencies for the marine structures have proven that the MCU-Coatings systems using thin film technology outperform the currently best performing organic/inorganic zinc, coal tar epoxy systems at average total DFT of 360µm. Systems like MCU-Zinc overcoated with a MIO intermediate and a UV resistant coloured topcoat at 200µm total DFT or even MCU-Zinc overcoated with 2 coats of MCU-Alutopcoat at only 150µm total DFT exceeded the performance of the best performing traditional system after 10000 hrs of cyclic testing. The USACE spends more than 70 million dollars every year fighting corrosion.

Proven outstanding performance to marginal surface preparation:

A comparison test performed by another Government Agency dealing with road construction, an organisation that covers the maintenance of more than 200.000 steel bridges, has proven the superior performance of MCU-Coatings coatings to minimally prepared substrates. The FHWA tested 2 of our MCU-Coatings systems applied to an Sa 2,5 blasted substrate and to a mechanically prepared substrate. The results were astonishing. The performance on the mechanically prepared substrate was almost equal to the performance on the Sa 2,5 blasted substrate, even when applied to a salt contaminated substrate. This proves the outstanding surface tolerance of MCU-Coatings systems to marginally prepared substrates, salts, blistering and still supplying high quality corrosion resistance.

MCU-Coatings®: Best choice for encapsulating lead based systems and overcoating low solvent resistant coatings.

Moisture Curing Polyurea technology of MCU-Coatings have proven to be the best system for overcoating lead based alkyd paint. Several independent corrosion testing agencies in association with certain Government bodies have tested and approved moisture curing urethanes exclusively for encapsulating lead based paint systems.

Have a look at the comparison between MCU-Coatings & traditional systems in Table 4: Performance!

Table 1: Time is money

MCU-Coatings single component coatings	2 Component Coatings.
Can be applied at 6% to 99% humidity	STOP painting at 87% RH
No dew point restrictions when surface is visibly dry. Dry of wet surface with a cloth is sufficient	STOP painting when steel temp. is >3°C above dew point
Recommend for immersion in 30min.	STOP painting when rain is expected
Short cure times, even at -12°C.	Long cure times, especially at low temperatures
Fastest over-coating as low as 20 minutes	Typically much longer cure times
No induction time	Typically 20 minutes
Surface tolerant zinc primers (ISO Sa 2)	Zinc primers require Sa 2.5 → longer blasting
MCU-Miozinc tolerates flash rusting	Zinc primer do not tolerate flash rusting → re-blasting is often required.
MCU-Miozinc is recoatable by itself	Complex and time consuming repair methods for inorganic zinc primers
No inspection required for humidity, temperature, dew point, etc.	Time consuming extra inspections
Excellent adhesion to minimal surface profile	Extra roughening of old coating is more often required
Adheres to green concrete (≥14 days for cure)	At least 24 days of cure and must be dry
Less chance of pre-mature failure	Good chance of pre-mature failure

Table 2: Quality Assurance

Frequently occurring causes of premature failure with 2 component commercial systems.	"Why not" with MCU-Coatings?
Wrong mixtures	1 Component
Wrong components or thinner	1 Thinner
Pot life not respected	No pot life
To short induction time	No induction time
To high/low humidity during application or cure	6% to 99% humidity
Rain or fog during cure	Resistant to rain, fog or immersion within 30 minutes of application
Temp. lower than 5°C during application or cure	Up to -12°C
Cracking of inorganic zinc primers when DFT is over 50µm	MCU-Zinc and MCU-Miozinc DFT over 125µm
Dew point. Precipitation of dew point during cure	No dew point restrictions
Roughness of substrate is too low	Surface tolerant
Too high contamination (>50 mg/square meter)	Contamination above 100mg/square meter
Substrate is too wet.	Tolerant to damp surfaces
Insufficient roughening of old coating	Good adhesion without roughening (Do a test)
Not respecting maximum overcoat time	No recoat window
Good chance of pre-mature failure	Less chance of pre-mature failure

MCU-Coatings makes your surface protection simple and easy. Superior Protection with MCU-Coatings heavy duty Coatings.

Table 3: Thin film surface tolerant technology

MCU-Coatings single component coatings	2 Component Coatings.
1 component	Typically >5% extra paint loss and waste
Surface tolerant zinc primers to St 2 and St 3	Zinc primers require Sa 2.5 → longer blasting using more grit.
MCU-Miozinc primer tolerates flash rusting	Zinc primers do not tolerate flash rusting → re-blasting is often required using more grit
No waste or wrong mixing	Typically >5% extra loss and waste
Adhesion to 25µm surface roughness	Usually >60µm required increasing primer consumption by >15% and grit consumption
MCU-Miozinc primer tolerates flash rusting	Zinc primer do not tolerate flash rusting → re-blasting is often required increasing grit consumption
Limited overspray	Usually more
Less chance of pre-mature failure	Good chance of pre-mature failure

Table 4: Performance

Typical Quality causes of premature failure:	What makes MCU-Coatings perform better?
Cracking caused by impact or stretch of coatings that have become brittle.	Flexible resin resists cracking and serious impact, even after long term exposure.
Chemical deterioration in chemical environments	High resistance to atmospheric chemicals
Epoxy has poor UV resistance	UV resistant chemical resistant topcoats recommended for heavy duty service like decks, splash zone, marine environments, ...
Blistering caused by salt contamination	Designed permeability and high tolerance to moisture increases tolerance to salts
Epoxy glass flake typically >90mg loss on ASTM D 4060 Taber abrasion test, 1kg load, 1000 cycles	<30mg loss for all products
Undercreep, blistering and corrosion typically between 1,000 to 5,000 hours Salt spray	Passes 10.000 to 20.000 hours without corrosion, blistering or undercreep.
Delamination caused by insufficient surface roughness	MCU-Coatings adhere to minimal surface roughness of less than 25µm
Delamination caused by thermal stress overwhelming the adhesion of the undercoating	Low glass transition temperature and high flexibility. Minimal stress to underlying coating
Poor adhesion	Typically 10 to 17 Mpa
Corrosion at sharp edges	Thin film technology combined with good MIO film build on edges.
No adhesion with zinc primer to old coatings. ISO Sa 2.5 is required.	MCU-Zinc and MCU-Miozinc adhere to old coatings and St 2 prepared substrates
Good chance of pre-mature failure	Less chance of pre-mature failure

Table 5: MCU-Ferrogard compared to Coal Tar Epoxy

MCU-Ferrogard	Coal Tar Epoxy.
Improved UV resistance	Fast chalking
Greater flexibility	Brittle
Best is abrasion resistance (ASTM 4060-90 ≤ 3,1mg loss)	Variable
No recoat window, adheres even to CTE w/o abrading	Sweep blasting before recoating
Free of tar	Contains up to 90% raw coal tar
No irritation to applicator's skin or eyes	Irritation
Max. film build of 250µm in one coat	Requires min. film build of 450µm DFT
Passes LC 50 Fish Toxicity test	Does not pass
Contains MIO (Micaceous Iron Oxide)	No MIO

Product overview

PRIMERS - INTERMEDIATE/ TOPCOAT - TOPCOAT - HIGH HEAT - ACCELERATOR

MCU-Zinc

- ◆ Surface tolerant single component, zinc-rich primer
- ◆ Approved for Class B Slip Coefficient.
- ◆ Versatile, easy to use, corrosion resistant primer.
- ◆ Replaces epoxy zinc. Better performance than inorganic zinc.
- ◆ Unlimited recoat time
- ◆ Overcoatable by itself
- ◆ Tolerates flash rusting
- ◆ High DFT tolerance
- ◆ 1 primer for any type of surface prep. including UHP WJ, Dry blasting, wet abrasive blasting, power tool cleaning, hand tool cleaning, ...

MCU-Miozinc

- ◆ Surface tolerant MIO/zinc filled primer.
- ◆ Better surface tolerance than epoxy mastic
- ◆ Outperforms inorganic zinc primers
- ◆ High DFT tolerance and unlimited recoatable by itself
- ◆ Compatible with most old coatings and different alloys.
- ◆ Full or spot primer on hand and power tool cleaned, (wet/dry) abrasive blasted or UHP cleaned surfaces.
- ◆ Versatile, easy to use, corrosion resistant primer.
- ◆ Does not require Sa 2.5 for maximum performance.
- ◆ Tolerates flash rusting
- ◆ Recommended for immersion, splash zone and atmospheric exposure

MCU-Aluprime

- ◆ Most surface tolerant primer.
- ◆ Low viscosity, penetrating sealer to replace epoxy penetrating sealers.
- ◆ Outstanding abrasion & impact resistance
- ◆ Can be used in combination with any type of surface preparation
- ◆ Intermediate/Topcoat in highly abrasive environments

MCU-Ferroguard

- ◆ MIO filled, refined coal tar.
- ◆ Outperforms coal tar epoxy in all uses.
- ◆ Immerse within 30 minutes with or without the use of mcu-QuickCure in most conditions.
- ◆ Available in black and red oxide colours.
- ◆ Less irritating than conventional coal tar epoxy.
- ◆ Two coat MCU-Ferroguard system passes 5,000 hours prohesion testing on steel
- ◆ On any marine, offshore, hydro, wastewater or other structure exposed to salt or fresh water and sewage treatment.
- ◆ Above or below grade service direct to concrete or steel.
- ◆ Easily re-coatable and repairable.

MCU-Mastic

- ◆ Universal intermediate/barrier coating
- ◆ Coloured topcoat for interior use where there is limited UV exposure and slight ambering is acceptable
- ◆ Aromatic topcoat to replace epoxy
- ◆ High resistance to atmospheric chemicals
- ◆ Best choice in salt or fresh water immersion service.
- ◆ Ideal for use over MCU-Coatings' primers for long term performance in ballast tanks and cargo holds.
- ◆ Free of tar

MCU-Miomastic

- ◆ Used as an intermediate/barrier coating for new construction and full removal projects.
- ◆ High-solids aromatic intermediate for atmospheric service.
- ◆ MCU-Miomastic contains a proprietary blend of moisture curing polyurea resin and MIO and has many application and performance advantages compared to epoxy mastics.
- ◆ On any marine, offshore, hydro, wastewater or other structure exposed to salt or fresh water and sewage treatment
- ◆ Easily re-coatable and repairable
- ◆ Ideal to use over MCU-Coatings' primers for long term performance in atmospheric and interior service

MCU-Topcoat

- ◆ Semi-gloss aliphatic topcoat.
- ◆ Available in RAL and custom colours.
- ◆ Light stable exterior topcoat for atmospheric use
- ◆ Applies directly to galvanised and other non-ferro substrates

MCU-Miotopcoat

- ◆ MIO modified, low sheen aliphatic topcoat.
- ◆ Recommended for overcoating old coatings
- ◆ Very durable topcoat for atmospheric service.
- ◆ MIO modification greatly extends coating life and allows easy overcoating for years.

MCU-Alutopcoat

- ◆ Aluminum filled topcoat.
- ◆ Very durable, abrasion and weather resistant topcoat.
- ◆ Outstanding topcoat for restoring weathered galvanized steel.

MCU-Clearcoat

- ◆ Clear topcoat.
- ◆ Very durable, abrasion and weather resistant topcoat.
- ◆ High gloss.

MCU-Shieldcoat

- ◆ High gloss aliphatic finish coat.
- ◆ Available in RAL and customs colors
- ◆ Light stable exterior topcoat for atmospheric use

MCU-NiteGlo

- ◆ Luminiscent coating for over more than 8 hours
- ◆ High durability
- ◆ On shore and offshore use, industrial safety and security applications

MCU-Aluminium HH

- ◆ Heat resistant coating up to 650°C.
- ◆ Anticorrosive primer/finish a two layer system.
- ◆ Finish over MCU-Zinc HH.

MCU-Zinc HH

- ◆ Heat resistant coating up to 420°C.
- ◆ Anticorrosive primer under MCU-Aluminium HH.

QuickCure

- ◆ Speeds up cure times by 80%
- ◆ Cure time reduced to 30 minutes, depending on temperature
- ◆ Pot life still one day when spraying
- ◆ Increases the DFT tolerance of the MCU-Coatings products.
- ◆ Increases gloss
- ◆ Adds performance
- ◆ Increases production

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