Technical Data Sheet

MCU ALUPRIME NS®

Product and Technology Description

MCU-Aluprime NS is a single component moisture cure polyurea coating, based on aluminium pigments. It is a penetrating sealer and primer for ferrous and non-ferrous metal substrates that has excellent barrier protection against corrosive elements. MCU-Aluprime NS can be used as a surface tolerant primer, crevice sealer, intermediate or finish coat in atmospheric and splash zone areas.

MCU-Aluprime NS has unmatched adhesion and wetting characteristics, even on marginally prepared surfaces. It is also ideal for use as a penetrating sealer for crevices, and as a tie coat over most existing coatings and can also be used in lead encapsulation systems.

Technology Features

1 component – minimal preparation and no pot-life limitations
Can be applied in 6 % to 99 % relative humidity
Cures quickly, even at -20 °C, 45 minute recoat possible
Can be applied at ambient temp. to 50°C & steel to 75°C
High surface tolerance
Exceptional corrosion resistance
Excellent abrasion resistance
Good chemical resistance
Superior Flexibility - No cracking, flaking or peeling
Moisture resistant after 30 minutes
High resistance to blistering
Typical service temperatures -45°C to 145°C *
Excellent adhesion to most substrates and sound aged coatings
UHP WJ, dry/wet blasting & power tool cleaning

Product Specific Features
Can also be used as a topcoat
Lead encapsulation
Excellent wetting out properties
Suitable for immersion & atmospheric exposure
Recommended for splash zones

Areas of Use

Substrates
Ferrous – mild steel / cast iron
Overlapping / touch-up:
- Non-ferrous metals
- Metallized coatings
- Galvanised metal
- Aluminium
- Copper, brass

FRP
Concrete
(and most sound old coatings)

Possible uses
Structural steel
Bridges
Oil & gas storage / offshore platforms / refineries
Port facilities / ships / wharves / jetties
Material handling equipment
Wind energy / hydropower / transmission towers
Pipes / pumps / valves
Chemical processing plants / paper mills
Concrete and steel floors
Water and wastewater treatment sites

Specifications

Resin type:	Aromatic polyurea
Pigment type:	Aluminium
Sheen:	Medium gloss
Colour:	Aluminium
Volume solids:	63%±2.0%
VOC:	332 g/l
Theoretical coverage:	25µm DFT: 25.2 m2/l
Recommended film thickness:	
Wet:	60 - 95 µm - no thinners
Dry:	44 - 60 µm

Performance test data:

Adhesion (ASTM D4541): >19 MPa (2755 PSI)
Impact (ASTM 2794): Direct 175; reverse 30
Prohesion (ASTM G85 5,000 hours): Scribe rate 9.5; No blistering
Flexibility (AST D522): 1 ½" to 1/8" Mean Elongation: 38%
Dry Heat Resistance: Continuous 145 °C
Salt Spray (ASTM B117): +4,500 hours (several systems)
Norsok M-501 systems 1 and 3: Passes
ISO 12944 C5 VH: Passes
Testing on various versions of Aluprime

Storage and Shipping Information

Shelf life:	15 months from date of manufacture if stored unopened between -5 °C & 30 °C in a cool, dry place
Density:	1.12 ± 0.12 kg/l
Flash point:	38.5 °C
UN proper shipping name:	UN 1263, PAINT, Class 3, Packaging Group III

Drying Times and Temperatures – 75µm DFT

Temperatures RH at 60% *	Tack free		Recoat minimum & maximum *		Recoat max with itself *	Full cure	
	without MCU-Quickcure	*with MCU-Quickcure*	*without MCU-Quickcure*	*with MCU-Quickcure*	*with & without MCU-Quickcure*	*without MCU-Quickcure*	*with MCU-Quickcure*
-20 °C	20 hours	15 hours	72 hrs / 7 days	12 hrs / 7 days	21 days	**	**
-10 °C	15 hours	10 hours	24 hrs / 7 days	8 hrs / 7 days	21 days	**	**
0 °C	7 hours	5 hours	18 hrs / 7 days	2 hrs / 7 days	21 days	**	**
10 °C	30 minutes	20 minutes	10 hrs / 7 days	1.5 hrs / 7 days	21 days	10 days	10 days
25 °C	10 minutes	10 minutes	5 hrs / 7 days	1 hr / 7 days	21 days	7 days	7 days
40 °C	10 minutes	10 minutes	3 hrs / 7 days	45 min / 7 days	21 days	5 days	5 days

Refer to MCU-Quickcure Technical Data Sheet for additional information

* Cohesive adhesion between applications exceeding the above recoat times will diminish slightly over time, however, still far exceeds international standards (ISO 12944,16276, 4624). For extended overcoating times outside of the above, ensure the surface is clean and free of contaminants. If a glaze is visible, lightly scuff the surface as required to prepare for subsequent coats

* Humidity, temperature, and higher film build >75µm DFT will affect drying and curing times

** Product is serviceable but will cure slowly and remain soft for a long period

Surface Preparation

Ferrous Metal

Use SSPC-SP1 solvent cleaning and/or MCU-Ecodegreaser to remove oil and grease or other contaminants prior to employing surface preparation methods.

Blast Clean surfaces for immersion or severe service projects by ISO 8504-2 methods to SSPC-SP10/NACE No. 2 (ISO Sa 2.5)

Near-White Blast Cleaning, visual standard SSPC vis 1, or by SSPC-SP12/NACE No. 5 high- and Ultra High Pressure Water Jetting to WJ 2M, visual Standard SSPC vis 4/NACE vis 7, very thorough cleaning finish (not applicable for new steel) or by SSPC-TR2/NACE 6G198 Wet abrasive blast cleaning methods to WAB 10M, visual standard SSPC vis 5/NACE vis 9 Wet near white metal blast clean finish.

Prepare surfaces for non-immersion or atmospheric service projects by ISO 8504-2 methods to SSPC-SP6/NACE No. 3 (ISO Sa2) Commercial Blast Cleaning, visual standard SSPC vis 1, or by SSPC-SP12/NACE No. 5 high- and Ultra High Pressure Water Jetting to WJ 4 M, visual standard SSPC vis 4/NACE vis 7, or by SSPC-TR2/NACE 6G198 Wet abrasive blast cleaning methods to WAB 6M, visual Standard SSPC vis 5/NACE vis 9 Wet commercial blast clean finish.

For minimum surface preparation, use conscientious hand and power tool cleaning methods in accordance with ISO 8504-3 SSPC-SP2 and SSPC-SP3 (ISO St2 or St3) Hand Tool Cleaning, visual standard SSPC vis 3 to remove corrosion, loose or failing paint to St2 or St3. Feather the edges of sound, existing paint back to a firm edge. Consult your MCU-Coatings Representative for additional information.

Blast cleaning methods should produce a minimum surface profile of 20-50µm.

Corten Steel

Prepare surfaces using SSPC-SP12/NACE No. 5 Low Pressure Water Cleaning methods. Supplement SSPC-SP 12 LPWC with ISO 8504-3/SSPC-SP2 or SSPC-SP3 hand or power tool cleaning where areas show excessive corrosion. Use SSPC-SP1 Solvent Cleaning and/or MCU-Ecodegreaser to remove oil and grease prior to surface preparation.

Aluminium/Non-Ferrous Metals

Prepare surfaces using SSPC-SP1 Solvent Cleaning and SSPC- SP12/NACE No.5 Low Pressure Water Cleaning methods to remove surface contamination. Supplement weathered galvanised surface preparation with ISO 8504-3/SSPC-SP2 and SSPC-SP3 Hand and Power Tool Cleaning to remove excessive corrosion and impart surface profile on bare metal. Supplement new galvanised surface cleaning with mechanical abrasion to impart surface profile and support mechanical adhesion.

Galvanised Metal

Prepare surfaces using SSPC-SP1 Solvent Cleaning and SSPC-SP12/NACE No. 5 Low Pressure Water Cleaning methods to remove surface contamination. Supplement weathered and new galvanised surface preparation with: ISO 8501-1 St 2 (SSPC-SP 2 and 3) hand and power tool cleaning; and/or MCU-Ecocleaner to remove excessive corrosion and impart surface profile on bare metal; and/or with mechanical abrasion to impart a surface profile to support mechanical adhesion.

Best Practice

The surface to be coated must be dry, clean, dull, and free from dirt, grease, oil, rust, mill scale, salts or any other surface contaminants that interfere with adhesion.

Ensure welds, repair areas, joints, and surface defects exposed by surface preparation are properly cleaned and treated prior to coating application. Consult the referenced standards, SSPC-PA1 and your MCU-Coatings' representative for additional information or recommendations.

Application Information

MCU-Aluprime NS can be applied by brush, roller, airless spray, pressure pot, and conventional spray methods. Follow proper mixing instructions before applying.

Mixing

Material temperature should be 3°C above the dew point before opening and agitating. If not, warm the can accordingly, this will prevent moisture intrusion into the open can. Power mix thoroughly prior to application. Do not keep under constant agitation.
If required, apply a solvent float over the material (approx. 2mm) to prevent moisture intrusion, then cover the can.

Reducer

Typically not required. If necessary, thin up to 10% with a recommended MCU-Thinner. See Technical Data Sheet for additional information.

Brush/Roller	
Brush:	Natural fibre
Roller:	Natural or synthetic fibre cover
Nap:	5 to 10 mm (higher nap, thicker coat)
Core:	Phenolic

Airless Spray	
Pump Ratio:	28-40:1
Pressure:	124-138 bar (1800 – 2000 psi)
Hose:	5 to 10 mm (1/4" to 3/8")
Tip Size:	0.23 - 0.38mm (0.011-0.015 in)
Filter Size:	60 mesh (250 µm)

Conventional Spray	
Fluid Nozzle:	E Fluid Tip
Air Cap:	704 or 765
Atomizing Air:	3.1 - 5.2 bar
Fluid Pressure:	1 - 1.4 bar
Hose:	12mm ID; Max 16 metres

Clean-up

MCU-Thinner, MCU-Thinner 25 and MCU-Thinner 50. If MCU-Thinners are not available for cleaning up, use MEK, MIBK, Xylene, a 50:50 blend of Xylene and MEK or MIBK, or acetone.

Do not add unauthorised solvents to MCU-Coatings.

Application

Temperature: - ambient temp. to 50°C & steel to 75°C
Substrate must be visibly dry.
* In extreme environments the resistance will diminish over time

Relative Humidity: 6% to 99%
MCU-Quickcure is advised when relative humidity is below 40%.

Coating Accelerator:

See MCU-Quickcure Technical Data Sheet for information.

Storage

Store off the ground in a dry, protected area in temperature between -5 °C to 30 °C. Containers must be kept sealed when not in use. Use a solvent float to reseal partially used containers.

Safety Precautions

This product is for industrial and professional use only. Consult the Safety Data Sheet.

Warranty

MCU-Coatings warrants its products to be free from defects in materials. MCU-Coatings sole obligation, and Buyer's exclusive remedy, in connection with the products shall be limited, at MCU-Coatings' option to either replace the products not conforming with this warranty, or to credit the Buyer's account with the invoiced amount of the non-conforming products. Any claim under this warranty must be made by Buyer to MCU-Coatings in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf- life, or six months from the delivery date, whichever is earlier. Buyer's failure to notify MCU-Coatings of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

MCU-Coatings makes no other warranties concerning the products. No other warranties, whether expressed, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall MCU-Coatings be liable for consequential or incidental damages.

Any recommendations or suggestions relating to the use of the products made by MCU-Coatings, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having the requisite skill and know-how in the industry, and therefore the Buyer must satisfy itself as to the suitability of the products for their own particular use, and it shall be deemed that Buyer has done so at its sole discretion and risk. Variations in environment, changes in procedures of use or extrapolation of data may cause unsatisfactory results.

Limit of Liability

MCU-Coatings' liability on any claim of any kind, including claims based upon MCU-Coatings' negligence or strict liability for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allowable for the products or part thereof that gave rise to the claim. In no event shall MCU-Coatings be liable for consequential or incidental damages. Published Technical Data Sheets are subject to change without notice. Contact your MCU-Coatings representative for the most up to date Technical Data Sheets.