MCU SHIELD

DESCRIPTION

ThinTech Coatings MCU-SHIELD is a one-component, moisture-cured, pure aliphatic, semi-gloss, pigmented coating, available in both clear and all Base colors. MCU-SHIELD delivers outstanding UV resistance, color stability, weather resistance, corrosion resistance, and impact resistance – outperforming two-component polyurethane and epoxy technologies. Designed for atmospheric environments, coastal and marine applications, splash zones, high-humidity areas, and continuously condensing environments, MCU-SHIELD also provides superior protection against mildew.

Applications / Surfaces:

Surfaces: Black steel & mild steel, cast iron, aluminum & stainless steel, non-ferrous metals & metallized surfaces, galvanized surfaces, GRP (glass-reinforced plastic), and existing coatings.

Applications: Bridges & steel structures, offshore platforms & work vessels, marine facilities/ports, refineries & chemical processing plants, pulp & paper mills, pipelines & materials handling equipment, hydropower floors & facilities, water & wastewater treatment, and atmospheric exposure areas.

CHARACTERISTICS

Resin Type: Aliphatic Polyurea Hybrid

Finish: Semi-gloss (Base colors); transparent glossy & semi-gloss (clear)

Color: RAL, BS, NCS & Custom

Flash Point: 37.5 °C

VOC Content: 330 g/l

Volume Solids: 64.0% ± 2.0

Specific Gravity: 1.64 ± 0.12 kg/L

Shelf Life: 15 months from date of shipment, stored unopened, -5°C to 35°C

Theoretical Coverage: 25 µm DFT: 25.6 m²/L (1 mil DFT: 1,043 ft²/gal)

Recommended Film Thickness: Wet: 80–140 µm (3.1–5.5 mils) – do not thin | Dry: 50–90 µm (2.0–3.5 mils)

Expected Performance: 14 MPa adhesion (ASTM D4541, 2,030 PSI); 10,000+ hour salt spray resistance (ASTM B117, multiple systems); 5,000-hour Prohesion test (ASTM G85, scribe rating 9.5, no blistering); 145°C (293°F) continuous dry heat resistance; Impact (ASTM 2794) direct 140 / reverse 25; Norsok M-501: Pass; ISO 12944 C5-I: Pass.

Surface Preparation: Ensure the surface is clean, dry, dull, and free of dust, grease, oil, rust, and other contaminants prior to application (see Surface Preparation section).

APPLICATION INSTRUCTIONS

Test Area: Considering the various substrates, application methods, and environments, it is recommended to perform a small test on an inconspicuous area with MCU-SHIELD to ensure good adhesion and the desired result is achieved.

Moisture & Vapor: Can be applied at relative humidity from 6% to 99%. Can be applied on damp surfaces (the surface must be visibly dry). Moisture-resistant after 45 minutes from application.

Extreme Temperatures: Rapid curing, even at -20°C. Does not crack in the short term or long term. Dry heat resistance up to 145°C (293°F) continuously.

Chemical Resistance: High chemical resistance. High blistering/swelling resistance. Excellent corrosion resistance. Excellent adhesion on many types of surfaces.

Easy Application: One component – no pot life and no induction time required. No limit on overcoating time. Compatible with most common coating systems. Suitable for maintenance and new construction projects.



If you're a facility owner or contractor seeking to protect critical steel and metal assets in demanding environments, look no further than MCU-SHIELD's advanced one-component moisture-cured formulation and proven performance.

For more information:
info@thintechcoatings.com

SURFACE PREPARATION

Ferrous Metal: Prepare according to ISO 8501-1 Sa2 / SSPC-SP6/NACE No. 3 by commercial abrasive blasting, or by high-pressure/ultra-high-pressure water cleaning to WJ 4M. Minimum: power tool / hand tool cleaning to St2. Abrasive blast profile: 25–50 µm (1.0–2.0 mils). Use the recommended ThinTech Coatings primer.

Aluminum / Galvanized / Other Non-Ferrous Metal: Use SSPC-SP1 solvent cleaning and SSPC-SP12/NACE No. 5 low-pressure water cleaning. For corroded galvanized surfaces, supplement with SSPC-SP2/SP3. Spot prime bare metal with the recommended ThinTech Coatings primer. Use mechanical abrasion on new galvanized surfaces to improve adhesion.

Concrete / Concrete Block: The surface must be dry, uncontaminated, and sound. Remove grease and oil in accordance with ASTM D4258-83. Use SSPC-SP13/NACE No. 6 methods. Minimum cure time is 7–14 days for new concrete. Rinse and allow to dry completely before application.

Existing Coating: Use SSPC-SP12/NACE No. 5 water cleaning. Supplement with solvent cleaning and hand tool / power tool cleaning in corroded areas. Feather edges smoothly between intact coating and surrounding areas. Spot prime bare metal. Sand glossy surfaces. Perform a patch test to determine compatibility.

APPLICATION

1. Mixing & Thinner: Material temperature must be 3°C (5°F) above the dew point before opening. Mix thoroughly with a mixer – do not keep under continuous agitation. Apply a 3–6 oz coat of MCU-Thinner 25 float on the material surface to prevent moisture intrusion. Thinner is normally not needed; if needed, thin up to 10% with the thinner recommended by ThinTech Coatings. Weld stripe coat: thin 20–50% with Thinner 25. If steel temperature exceeds 45°C, use Thinner 50.

2. Application Method: MCU-SHIELD may be applied by brush, roller, air spray, and conventional spray (one coat only). Brush/Roller: natural-bristle brush; natural or synthetic-bristle roller, 1/4"–3/8" nap, phenolic core. Air Spray: pump ratio 28–40:1, pressure 2,400–2,800 psi, tip 0.013–0.021, 60 mesh filter. Conventional Spray: 704 or 765 air cap, atomizing air pressure 45–75 lbs, fluid pressure 15–20 lbs.

Best Practices: The surface must be dry, clean, dull, and free of dust, grease, oil, rust, and other contaminants. Clean welds, joints, and defects before application. Conduct a test sample to determine compatibility.

TECHNICAL DATA

DRYING TIME & APPLICATION CONDITIONS (75 µm DFT / 3 mils, 60% RH)	
Touch / Surface Dry (25°C, without accelerator)	2–6 hours
Minimum Recoat (25°C, without accelerator)	1 hour
Fully Dry (25°C, without accelerator)	7 days

Temperature Range (application)	-20°C to 75°C (-4°F to 167°F)
Relative Humidity	6% to 99% – Speed Dry accelerator recommended when RH is below 40%
Coating Accelerator	Speed Dry – refer to the Speed Dry product data sheet for complete information

Drying times will be affected by humidity, temperature, and increasing film thickness. See full drying-time table by substrate temperature available from your ThinTech Coatings representative.

TECHNICAL DATA (continued)

PHYSICAL & SHIPPING PROPERTIES	
Resin Type	Aliphatic Polyurea Hybrid
Volatile Organic Compound (VOC) Content	330 g/l
Volume Solids	64.0% ± 2.0
Theoretical Coverage	25 µm DFT: 25.6 m²/L (1 mil DFT: 1,043 ft²/gal)
Recommended Wet Film Thickness	80–140 µm (3.1–5.5 mils) – do not thin
Recommended Dry Film Thickness	50–90 µm (2.0–3.5 mils)
Specific Gravity	1.64 ± 0.12 kg/L
Flash Point	37.5 °C
Shelf Life	15 months from date of shipment, unopened, -5°C to 35°C
Packing Sizes	15 L, 210 L, 1000 L, 5 gal, 55 gal, 275 gal

UN Shipping Name	UN 1263, PAINT, CLASS 3, Packaging Group III

PERFORMANCE TEST DATA (Under standard test conditions)	
Adhesion (ASTM D4541)	14 MPa (2,030 PSI)
Salt Spray Resistance (ASTM B117)	10,000+ hours, multiple systems
Prohesion Test (ASTM G85)	5,000 hours, scribe rating 9.5, no blistering
Dry Heat Resistance	145°C (293°F) continuous exposure
Impact Resistance (ASTM 2794)	Direct 140 / Reverse 25
Norsok M-501	Pass
ISO 12944 C5-I	Pass

Properties and values are highly dependent on substrate preparation, film thickness, equipment, and application conditions. Variations are possible and expected.

STORAGE

Store off the floor in a dry, protected place at -5°C to 35°C (23°F to 95°F). Keep containers tightly closed. Use MCU-Thinner 25 float to seal partially opened containers. Shelf life is 15 months from date of shipment when stored unopened under recommended conditions.

CLEAN UP

Use MCU-Thinner, MCU-Thinner 25, and MCU-Thinner 50 for cleanup. Flush all spray pumps, hoses, and spray guns thoroughly with MCU-Thinner 25 before and after application to prevent coating defects.

CAUTION

For industrial and professional use only. Please refer to the Safety Data Sheet before use. ThinTech Coatings makes no other warranties. Recommendations are based on data believed to be reliable; the buyer must determine the suitability of the product for the intended use according to their own judgment and risk. Changes in the environment, process changes, or extrapolation of data may lead to unsatisfactory results. Published product data sheets are subject to change without notice – please contact a ThinTech Coatings representative to obtain current data sheets.