

MC-FerroClad™ Primer WASSER®

DUCTILE IRON PROTECTIVE COATING

Revision Date 11/17/06

Product Description

A single-component, moisture-cured urethane primer intended for ductile iron pipe and fittings. MC-FerroClad™ Primer is a proprietary formulation utilizing micaceous iron oxide (MIO) pigments and zinc. Its performance on ductile iron substrates has been evaluated in the field and by independent laboratories. Advantages include ease of use, rapid cure, extended recoat window, durability, and outstanding corrosion resistance for immersed and non-immersed applications.

Proven formulation compatible with acrylic, coal tar, catalyzed epoxies, polyurethane and moisture-cured urethane topcoats. MC-FerroClad™ Primer is also compatible with asphalt-based topcoats.

Area of Use

Substrates

Over properly prepared

Ductile Iron
Cast Iron
Gray Iron

Possible Uses

Exterior Pipe
Immersion Service
Air Piping
Marine/Coastal Exposures

Bridge Crossing
Gallery Piping
Pipe Fittings
Yard Piping

Ready Reference Information

Resin Type:	Proprietary
Sheen:	Flat
Colors:	Bluish-Grey and Red-Oxide
Volume Solids:	62.0% ± 2.0
VOC: (Volatile Organic Content)	2.8 lb/gal (340 g/l)

Theoretical Coverage: @1 mil DFT: 994 ft²/gal
(@ 25 µm DFT: 24.4 m²/l)

Recommended Film Thickness

Wet: 5.0-8.0 mils (127-203 microns)
Dry: 3.0-5.0 mils (76-127 microns)

Recommended Coverage per coat:

199 ft²/gal at 5.0 mils DFT - 331 ft²/gal at 3.0 mils DFT
(4.87 m²/l at 230 µm DFT - 8.28 m²/l at 76 µm DFT)

Thinning: MC-Thinner, MC-Thinner 100, MC-Thinner XMT
Clean-up: MC-Thinner, MC-Thinner 100, MC-Thinner XMT

Drying Times and Temperatures

	50° F (10° C)		75° F (24° C)		95° F (35° C)	
	without PURQuik®	with PURQuik®	without PURQuik®	with PURQuik®	without PURQuik®	with PURQuik®
Tack Free*	1 hr	--	30 min	--	20 min	--
Recoat Minimum* <small>Wasser MCU/Other Topcoats</small>	6 hrs	1 hr	4 hrs	30 min	3 hrs	20 min
Full Cure*	10 days	7 days	7 days	5 days	5 days	4 days

* At 50% Relative Humidity. Humidity, temperatures and coating thickness will affect recoat and curing time.

Recoat Maximum times with Wasser MCU and other topcoat technology: On clean, properly prepared surfaces, MC-FerroClad™ Primer is indefinitely recoatable. See Surface Preparation for Immersed Applications for additional details. Contact Wasser Technical Service for specific coating technology and service application considerations.

Refer to Wasser's PURQuik® Accelerator Product Data for additional information

Product Features

Single Component	Immersion & Non-immersion Service	Can be applied in cold, damp conditions
Proven Formulation (15+ years)	Chemical Resistant	No Dew Point Restrictions (Substrate must be visibly dry)
Extended Recoat Window	Impact Resistant	Surface Tolerant
Universal Primer: Compatible with most Generic Topcoats	Abrasion Resistant	Spray, Brush and Roller Application
Can be topcoated with itself	Low VOC	Compatible with PURQuik Accelerator

MC-FerroClad™ Primer

Recommended MCU Systems

IMMERSION & NON-IMMERSION Moisture Cure Urethane System

Black Finish

1 st Coat: MC-FerroClad™ Primer	3.0-5.0 mils DFT
2 nd Coat: MC-Tar	5.0-7.0 mils DFT
3 rd Coat: MC-Tar	5.0-7.0 mils DFT
DFT	
Total System DFT:	13.0-19.0 mils

Interior / Exterior Non-Immersion:

Dark Color Finish

1 st Coat: MC-FerroClad™ Primer	3.0-5.0 mils DFT
2 nd Coat: Ferrox B	3.0-5.0 mils DFT
3 rd Coat: MC-Ferrox A	
or MC-Luster	2.0-4.0 mils DFT
DFT	
Total System DFT:	8.0-14.0 mils

Light Color Finish

1 st Coat: MC-FerroClad™ Primer	3.0-5.0 mils DFT
2 nd Coat: MC-CR	3.0-4.0 mils DFT
3 rd Coat: MC-Luster	2.0-4.0 mils DFT
DFT	
Total System DFT:	8.0-13.0 mils

Note: Developed as an OEM shop primer for ductile iron casters, MC-FerroClad™ Primer is compatible with most high performance epoxies, coal tars, urethanes, etc. from other coating manufacturers. Contact your Wasser representative for specific applications.

Hybrid Coating Systems

MC-FerroClad™ Primer offers the best available technology today as a universal primer for ductile iron substrates:

It can be topcoated with a very wide range of high performance coatings including but not limited to epoxies, urethanes, bitumens, polyureas, and moisture cure urethanes.

It is a suitable primer for both immersed and non-immersed coating systems.

Over the past 4 years MC-FerroClad™ Primer has been used in many water treatment and wastewater treatment applications where field applied topcoats from different coating manufacturers have been successfully used. Topcoats from national coating

Performance Testing Data

Abrasion Resistance: (ASTM D4060 – CS-17 Wheel, 1,000 cycles/kg load)	80 mg loss
Hardness: (ASTM D2240)	75-80 Shore “D”
Salt Fog Resistance: (ASTM B117, 3000 hrs)	0.03% Rust
Condensing Humidity: (ASTM D455, 3000 hrs)	0.0%
Immersion: (ASTM D870, 3000 hrs)	0.1%
Dry Heat Resistance: Continuous:	250°F (120°C)
Wet Heat Resistance: Immersion: Intermittent:	150°F (66°C) 170°F (77°C)

Compatible Coatings

Moisture Cure Urethane (MCU) Coatings:

Intermediates:

MC-Tar	MC-Tar 200
MIO filled refined tar	
MC-Ferrox B	MC-Ferrox B 200
MIO-filled intermediate	
MC-Miomastic	MC-Miomastic 200
MIO-mastic intermediate	
MC-CR	MC-CR 200
Light colored intermediate	

Topcoats:

MC-Ferrox A	MC-Ferrox A 200
Flat-finish, aliphatic, MIO-filled topcoat	
MC-Luster	MC-Luster 200
Semi-gloss-finish, aliphatic topcoat	
MC-Shieldcoat	MC-Shieldcoat 200
Gloss-finish, aliphatic topcoat	
MC-Aroshield	
Gloss-finish, aromatic, interior topcoat	

Generic Interior / Exterior Non-Immersed Coatings:

Alkyd
Polyamide Epoxies
Modified Epoxies
Catalyzed Polyurethanes

For more information about generic topcoats, reference Wasser's Generic Coatings Compatibility chart or contact Wasser Technical Service.

Revision Date 11/17/06

Surface Preparation

DUCTILE IRON, CAST IRON, GREY IRON

Several publications and standards exist for the surface preparation of carbon steel substrates. Examples include The Society for Protective Coatings (SSPC), National Association of Corrosion Engineers (NACE), and Swedish Surface Preparation Standards. Inherent metallurgical, manufacturing and processing differences preclude certain parts of these surface preparation standards from being applied to ductile iron substrates.

Do not apply carbon steel surface preparation specifications to ductile iron. Doing so may result in damage to the ductile iron surfaces and reduce coating effectiveness and longevity.

PROCEDURES

All surfaces are to be inspected for oil, grease, etc. Any oil, grease, or contaminant that can be removed by solvent shall be solvent cleaned following the guidelines of SSPC-SP 1 Solvent Cleaning or National Association of Pipe Fabricators (NAPF) Solvent Cleaning Standard 500-03-01. (If an asphalt-based coating has been previously applied contact Wasser.)

For Atmospheric (Non-immersed) Applications: After proper solvent cleaning all surfaces shall be prepared using hand tools and/or power tools to remove loose annealing oxide, loose rust, loose mold coatings and other foreign matter. Annealing oxide, mold coatings, and rust are considered adherent if they cannot be removed by lifting with a dull putty knife. If power tools are used for surface preparation do not burnish the surface or use in such a manner as to cause burrs or sharp edges. Ensure surface is clean and visibly dry prior to primer application.

For Immersed Applications: After proper solvent cleaning all surfaces shall be cleaned using sand or grit abrasive media. DO NOT OVERBLAST. Overblasting can result in a surface that is unsuitable for coating. (High nozzle velocities and/or excessive blast times can cause “blistering” and “slivering”.)

Abrasive blast cleaning shall remove all rust, loose annealing oxides, etc. After all surfaces are struck by the blast media, tightly adherent annealing oxide, mold coating and rust staining may remain on the surface provided they cannot be removed by lifting with a dull putty knife. Ensure surface is clean and visibly dry prior to primer application.

TOPCOATING MC-FERROCLAD PRIMER

For Interior / Exterior, Non-Immersed Applications: Prepare surfaces using SSPC-SP12/NACE No.5 Low Pressure Water Cleaning methods to remove surface contamination. Supplement SSPC-SP12 LPWC with SSPC-SP1 Solvent Cleaning and SSPC-SP2 or SP-3, Hand and Power Tool Clean (feather edges of sound, existing paint back to a firm edge). Spot prime clean, bare metal with MC-FerroClad Primer. If a Wasser topcoat is not used, apply a test sample to determine coating compatibility. (See also “Hybrid Systems” section)

For Immersed Applications: If MC-FerroClad™ Primer is exterior exposed for 1 year or more, it must be recoated with itself or scarified before top coating.

If topcoats other than recommended Wasser topcoats are used, scarification is typically recommended. Refer to the coating manufacturer’s technical data.

Application Information

MC-FerroClad™ Primer can be applied by brush, roll, airless spray and conventional spray. Follow proper mixing instructions before applying.

Mixing:

Material temperature must be 5°F above the dew point before opening and agitating.
Power mix thoroughly prior to application.
Do not keep under constant agitation.
Apply a 3-6 oz solvent float over material to prevent moisture intrusion and cover pail.

Brush/Roller:

Brush: Natural Fiber
Roller: Natural or synthetic fiber cover
Nap: ¼” to ⅜”
Core: Phenolic
Reduction: Typically not required. If necessary, reduce with MC-Thinner 100

Airless Spray:

Pump Ratio: 28-40:1
Pressure: 2400-2800 psi
Hose: ¼” to ⅜”
Tip Size: .013-.019
Filter Size: 60 mesh (250 µm)
Reduction: Typically not required. If necessary, reduce with MC-Thinner or MC-Thinner 100

Conventional Spray: (DeVilbiss)

Fluid Nozzle: AV15E
Air Cap: BMC43DE
Atomizing Air: 45-75 lbs.
Fluid Pressure: 15-20 lbs.
Reduction: Typically not required. If necessary, reduce with MC-Thinner or MC-Thinner 100

Reducer: MC-Thinner, MC-Thinner 100, (if VOC regulations restrict thinning, use MC-Thinner XMT). Reduction is typically not required. If necessary, thin up to 10% with recommended thinner. MC-Thinner 100 is recommended for application in temperature above 90°F (32°C). Thin in accordance with local and federal regulatory standards.

Clean up: MC-Thinner, MC-Thinner 100. If Wasser thinners are not available, use MEK, MIBK, Xylene, a 50:50 blend of Xylene and MEK or MIBK, or acetone for clean-up only. Do not add unauthorized solvents to a Wasser coating.

Application Conditions:

Temperature: 32°F-110°F (0°C-38°C) ambient and material
32°F-115°F (0°C-46°C) surface
Substrate must be visibly dry.

Relative Humidity: 6%-99%

Coating Accelerator: PURQuik® Accelerator. See Wasser’s PURQuik® Accelerator Product Data for information.

Storage: Store off the ground in a dry, protected area in temperature between 40-100°F (4-38°C). Containers must be kept sealed when not in use. Use a solvent float to reseal partial containers.

Revision Date 11/17/06

Certifications and Qualifications

Revision Date 11/17/06

VOC Compliant (National Standards – Industrial Maintenance Coating)
Independent Laboratory Performance Testing (on Ductile Iron Pipe)

Ordering Information

Product Numbers: W03.0597 – Bluish-Grey
W03.1211 – Red-Oxide

Package Size: 1 gallon and 3 gallon pails

Shelf Life: 12 months from date of shipment when stored unopened at 75°F (24°C)

Shipping Information

Flash Point: 83°F (28°C)
Weight/gallon: 20.6 ± 1.0 lbs
(2.48 ± .12 kg/l)

DOT HAZARD CLASS 3
DOT PACKAGING GROUP III
DOT LABEL FLAMMABLE LIQUID
DOT SHIPPING NAME PAINT
DOT PLACARD FLAMMABLE LIQUID
UN/NA NUMBER 1263

Safety Precautions

DANGER!

VAPOR AND SPRAY MIST HARMFUL. OVEREXPOSURE MAY CAUSE LUNG DAMAGE. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION, EFFECTS MAY BE PERMANENT, MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS HEADACHE OR NAUSEA. CAUSES EYE, SKIN, NOSE AND THROAT IRRITATION. FLAMMABLE LIQUID AND VAPOR.

CONTAINS: Petroleum Distillates, Xylene, Ethylbenzene, Modified MDI, Modified Polymeric MDI, 4,4'-Diphenylmethane Diisocyanate

NOTICE: Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. INDIVIDUALS WITH LUNG OR BREATHING PROBLEMS OR PRIOR REACTION TO ISOCYANATES MUST NOT BE EXPOSED TO VAPOR OR SPRAY MIST. **Use Only With Adequate Ventilation.** Do not breathe dust, vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling. Keep away from heat, sparks and flame. Vapor may cause flash fire.

KEEP OUT OF REACH OF CHILDREN

FIRST AID: If affected by inhalation of vapor or spray mist, remove to fresh air. If breathing difficulty persists or occurs later, consult a physician and have label information available. In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If swallowed, get medical attention immediately. If swallowed, do not induce vomiting. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Keep container closed when not in use. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations. Obtain and read the Material Safety Data Sheet before using this product.

WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects, or other reproductive harm.

INTENDED FOR PROFESSIONAL USE ONLY.

W03.0597

W03.1211

Wasser Corporation's liability on any claim of any kind, including claims based upon Wasser Corporation's 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 give rise to the claim. In no event shall Wasser Corporation be liable for consequential or incidental damages. Published Product Data Sheets are subject to change without notice. Contact your Wasser Representative for current Product Data Sheets.