



Protective Coatings for Pipeline Coatings and Linings Product Selector Guide

MADISON CHEMICAL INDUSTRIES INC.

The Technology Leader For Infrastructural Coatings™

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WELCOME TO MADISON CHEMICAL

Madison Chemical Industries is a technology leader in the development and marketing of “Infrastructural Coatings” - ultra high performance coatings that protect and preserve the infrastructure upon which our society depends. With over 35 years of experience on four continents, Madison has evolved into a mainstream supplier to many industries including all aspects of the storage, transmission and processing of both potable water and wastewater.

From our roots supplying coatings to North America's largest manufacturers of storage tanks and water/wastewater pipe, Madison has established a reputation with specifiers and municipalities for the protection and preservation of structures of all types, whether shop fabricated or field erected.

If you are involved in the protection of water purification facilities, waste treatment plants, secondary containment and similar municipally-owned or privately owned facilities, Madison has the products and services necessary to provide you with long-term solutions for your unique corrosion prevention challenges.

TECHNOLOGY LEADERS

We are a technology leader all the way, with over three decades of breakthroughs. Here are just a few:

- 1974- First polyurethane tank coatings
- 1981- First polyurethane pipeline coatings
- 1989- First polyurethane lining to receive NSF listing for potable water service
- 1998- Permanent Anti-Microbial (AM) MicroSpear Technology
- 2001- Ceramic (CM) polyurethanes for highly abrasive conditions
- 2008- No-Blast technology simplifies surface preparation for many common applications

TECHNICAL AND PROJECT SERVICES

Our technical service specialists are highly trained and are NACE certified. We recruit a skilled network of independent applicators to guarantee superior product performance. To become a Madison Approved Applicator, a coating contractor must undergo rigorous training to ensure that they are experts in surface preparation, product application, equipment service, spray techniques and troubleshooting. Every member of our in-house technical service team has years of experience, so outstanding support is just a phone call away.

PERFORMANCE

Unrivalled handling and performance characteristics allow Madison's coating products to meet the demands of an incredible array of applications. A wide variety of coatings are available for virtually every kind of substrate encountered in the water and wastewater industry, including steel, ductile iron and concrete. Many of Madison's coatings now achieve adhesion in excess of 3,000 psi, more than twice that of the competition. Coated surfaces are so smooth that the coefficient of friction rivals that of polyethylene. Impact resistance values compare to the best in the industry. Chemical resistance is proven by 30 years of real-world experience and hundreds of long-term laboratory immersion tests.

Some of the leading edge handling characteristics you can expect from Madison include⁽¹⁾:

- Curing at virtually any temperature, winter and summer
- Non-flammable, solvent free and intrinsically safe
- Self-priming direct to metal systems
- Application in a single multi-pass coat
- Setting times from seconds to hours
- Return to service in hours
- Easy touch-up and repair
- D.O.T. rated as “non-hazardous”

Important performance advantages include:

- Superior adhesion
- Resistance to chemical attack
- Resistance to gouging and abrasion
- Flexibility and resilience to embrittlement
- Inert when cured; no risk of ‘tainting’ water supply
- Impermeability
- Resistance to disbondment and undercutting
- Several national and international approvals
- Special versions with anti-microbial and/or ceramic modified modifications for additional performance protection

QUALITY

Madison products are designed to last for decades, even in the most aggressive environments, and we have the case studies and technical data to prove it. In addition to numerous approvals from 3rd party agencies like UL, AWWA and NSF, we are also an ISO 9001:2008 certified facility.

At Madison we don't simply manufacture and ship coating products. We provide a complete package of coating services designed to satisfy the expectations of our customers. We go beyond the norm to provide our customers with quality, service, and innovation.

⁽¹⁾ Not all the above features apply to every product.

Application	Substrate	Service Requirement	Basecoat/ Primer	Maincoat/ Topcoat	Total DFT (mils)	Surface Prep'n	System	Description
Concrete Pipe, Manholes, Precast Panels, Joints	Prestressed Concrete Cylinder Pipe	Immersion	MG-201 3-4 mils	CorroPipe II TX-15 25+ mils	28+	SSPC-SP13	PL-110	Plural component system. For rough concrete, increase TX-15 thickness to 40 mils. For highly abrasive applications, specify CM version (ceramic modification)
		Exterior	MG-201 3-4 mils	CorroPipe II TX-15 25+ mils	28+	SSPC-SP13	PL-110	Plural component system. For rough concrete, increase TX-15 thickness to 40 mils. For highly abrasive applications, specify CM version
	Reinforced Concrete Pipe	Immersion	MG-201 3-4 mils	CorroPipe II TX-15 40+ mils	43+	SSPC-SP13	PL-110	Plural component system. For rough concrete, increase TX-15 thickness to 60 mils. For highly abrasive applications, specify CM version (ceramic modification)
		Exterior	MG-201 3-4 mils	CorroPipe II TX-15 40+ mils	43+	SSPC-SP13	PL-110	Plural component system. For rough concrete, increase TX-15 thickness to 60 mils. For highly abrasive applications, specify CM version
	Manholes and Precast Panels	Immersion	MG-201 3-4 mils	CorroPipe II TX-15 60+ mils	63+	SSPC-SP13	PL-110	Thickness is dependent on required resistance to hydraulic load (head). See our Lining Spec. SP LF1998-01 for details
		Exterior	MG-201 3-4 mils	CorroPipe II TX-15 60+ mils	63+	SSPC-SP13	PL-110	Thickness is dependent on required resistance to hydraulic load (head). See our Lining Spec. SP LF1998-01 for details
	Bells and Spigots	Immersion and Exterior	MG-201 3-4 mils	CorroPipe II TX-15 40+ mils	43+	SSPC-SP13	PL-110	Actual thickness is dictated by joint dimensions and may be greater if joint designed accordingly

Application	Substrate	Service Requirement	Basecoat/ Primer	Maincoat/ Topcoat	Total DFT (mils)	Surface Prep'n	System	Description
Pipe	Steel Immersion Potable Water	Potable Water	NA	CorroPipe II PW	20	SSPC-SP10	PL-250	Plural component .Rated for DHOT, per NSF 61. Also available with MicroSpear AM technology and/or ceramic modification (CM)
		As above but extended service life	NA	CorroPipe II PW Ultra	20	SSPC-SP10	PL-255	Designed for maximum life Contains AP-50 Adhesion Promoter for superior adhesion and has very low water permeability. Also available with MicroSpear AM technology and/or CM
	Exterior-Below ground	Designed for maximum performance	NA	CorroPipe 3000	20	SSPC-SP10	PL-300	Superior adhesion, abrasion resistance, undercutting resistance and chemical resistance. 100 year design life
		High performance and surface tolerant	NA	CorroPipe II Omni	20	SSPC-SP10	PL-150	Contains AP-50 Adhesion Promoter for superior adhesion Also available with MicroSpear AM technology and/or CM
		Multi-purpose for good all-around performance.	NA	CorroPipe II TX-15	20	SSPC-SP10	PL-110	Also available with MicroSpear AM technology and/or CM
		Multi-purpose, single component plus catalyst	NA	CorroPipe 'S'	20	SSPC-SP10	PL-600	Applied in 3 coats by airless spray or roller. Available with AM and/or CM
	Exterior Above ground	Severe Service or Lifetime design	CorroPipe II Omni 20 mils	CorroPipe 1:4 Aliphatic 3-5 mils	23-25	SSPC-SP10	PL-650	CorroPipe 1:4 Aliphatic (mix and apply format) provides resistance to color and gloss change in atmospheric exposure over
		Medium to Heavy duty industrial service	NA	CorroPipe II Aliphatic	20	SSPC-SP6	PL-505	The world's only fast setting 100% solids aliphatic polyurethane for atmospheric pipeline service. Excellent resistance to color change and fading

Application	Substrate	Service Requirement	Basecoat/ Primer	Maincoat/ Topcoat	Total DFT (mils)	Surface Prep'n	System	Description
Pipe	Steel Immersion Wastewater	Multi-purpose lining	NA	CorroPipe II TX-15	20	SSPC-SP10	PL-150	Designed for a wide range of non-potable water immersion environments. AM and CM available
		High performance and surface tolerant	NA	CorroPipe II Omni	20	SSPC-SP10	PL-150	Contains AP-50 Adhesion Promoter for superior adhesion Also available with MicroSpear AM technology and/or CM
		Designed for maximum performance	NA	CorroPipe 3000	20	SSPC-SP10	PL-300	Provides superior adhesion, abrasion resistance, undercutting resistance and chemical resistance. 50 year immersion design life
		Multi-purpose, single component plus catalyst	NA	CorroPipe 'S'	20	SSPC-SP10	PL-600	Applied in 3 coats by airless spray or roller. Available with AM and/or CM

Application	Substrate	Service Requirement	Basecoat/ Primer	Maincoat/ Topcoat	Total DFT (mils)	Surface Prep'n	System	Description
Pipe	Galvanized Steel Immersion - Water/ Wastewater	Multi-purpose lining designed for a wide range of non-potable environments.	NA	GalvaClad Aromatic	20	GalvaGrip Surface Conditioner Or SSPC-SP7	PL-700	Contains AP-50 Adhesion Promoter for superior adhesion. AM and CM available
		Designed for extended service life of up to 50 years or more.	NA	GalvaClad II Ultra	20	GalvaGrip Or SSPC-SP7	PL-705	Highest performance and surface tolerant. Contains AP-50 Adhesion Promoter for superior adhesion. AM and CM available
	Galvanized Steel Exterior - Below ground	General purpose use for a variety of embedded and immersion environments	NA	GalvaClad Aromatic	20	GalvaGrip Or SSPC-SP7	PL-700	CM available for particularly abrasive soil or installation conditions
		Designed for severe service	NA	GalvaClad II Ultra	20	GalvaGrip Or SSPC-SP7	PL-705	CM available
	Galvanized Steel Exterior - Above ground	General purpose use For a variety of atmospheric conditions	CorroPipe Zinc Rich Primer 3-5 mils	CorroPipe 1:4 Aliphatic 1 or 2 coats of 3-5 mils each	6-10 mils Or 9-15 mils	GalvaGrip Or SSPC-SP7	PL-710	CorroPipe Zinc Rich Primer is a Mix-and-Apply, surface tolerant primer containing several corrosion resistant technologies, including zinc, micaceous iron oxide and aluminum flake. CorroPipe 1:4 Aliphatic provides UV resistance
		Excellent resistance to color change and fading	NA	CorroPipe II Aliphatic	20	GalvaGrip Or SSPC-SP7	PL-505	The world's only fast setting 100% solids aliphatic polyurethane for atmospheric pipeline service

Application	Substrate	Service Requirement	Basecoat/ Primer	Maincoat/ Topcoat	Total DFT (mils)	Surface Prep'n	System	Description
Pipe	Ductile Iron Immersion - Reclaimed Water/ Wastewater/ Sewage	Multi-purpose lining	NA	CorroPipe II TX-15	40	SSPC-SP10	PL-150	Designed for a wide range of non-potable water immersion environments. AM and CM available
		High performance and surface tolerant	NA	CorroPipe II Omni	40	SSPC-SP10	PL-150	Contains AP-50 Adhesion Promoter for superior adhesion Also available with MicroSpear AM technology and/or CM
		Designed for maximum performance	NA	CorroPipe 3000	40	SSPC-SP10	PL-300	Provides superior adhesion, abrasion resistance, undercutting resistance and chemical resistance. Suitable for temperatures up to 90C (195F)
	Ductile Iron Exterior - Below ground	Designed for maximum performance	NA	CorroPipe 3000	25	SSPC-SP10	PL-300	Provides superior adhesion, abrasion resistance, undercutting resistance and chemical resistance. 100 year design life. CM version is available
		High performance and surface tolerant	NA	CorroPipe II Omni	25	SSPC-SP10	PL-150	Contains AP-50 Adhesion Promoter for superior adhesion CM version is available
	Ductile Iron Exterior - Above ground	'Never Go Back To Bare Metal' - for maximum design life	CorroPipe II Omni 20 mils	CorroPipe 1:4 Aliphatic 3-5 mils	23-25	SSPC-SP10	PL-650	CorroPipe 1:4 Aliphatic (mix and apply format) provides resistance to color and gloss change in atmospheric exposure. Requires a refresher coat every 12-15 years. CM available
		Excellent resistance to color change and fading	NA	CorroPipe II Aliphatic	20	SSPC-SP10	PL-505	The world's only fast setting 100% solids aliphatic polyurethane for atmospheric pipeline service. CM available

PRODUCT AND TECHNOLOGY DESCRIPTIONS

CorroPipe Zinc Rich Primer: 'Next Generation' Zinc Rich Primer, has the desirable performance properties of zinc rich primers in a more user friendly format.

'MicroSpear' AM (Anti-Microbial) Technology: a proprietary, permanent ant-microbial modification. Suitable for use in all water immersion applications for prevention of microbial induced corrosion (MIC).

CorroPipe: A family of high performance pipeline polyurethane coatings; primarily 1:1 fast set, high build coatings (PW, TX-15, Omni, 3000), however slower setting, paint-like products are available ('S', 1:4 Aliphatic).

GalvaClad Aromatic: A multi-purpose 100% solids, 1:1 fast set polyurethane protective coating.

GalvaClad Aliphatic: Similar to GalvaClad Aromatic, with premium resins for color and gloss stability.

GalvaClad Liquid Zinc: A versatile, user friendly, surface tolerant primer/repair coating.

GalvaClad II Ultra: A high performance 100% solids, 1:1 fast set polyurethane for severe service.

MG series: 'Mix and Apply' polyurethane modified epoxies. MG-120 is NSF-61 approved. MG-201 is a primer/sealer suitable for concrete.

NanoShield CM (Ceramic Modification): Ceramic nanospheres providing the highest level of abrasion resistance.

NSF 61: (National Sanitation Foundation) - Specification governing products in contact with potable water.

NOTE: For more detailed descriptions of these products, refer to the detailed Technical Data Sheets.

SYSTEMS

SYSTEM PL-110	CorroPipe II TX-15 in One Multi-Pass Coat. Use Fast Set with Standard Plural Component Equipment. Near White Metal Blast.
SYSTEM PL-150	CorroPipe II Omni, in One Multi-Pass Coat using Standard Plural Component Equipment. Snap Set, Fast Set and Medium Set are usually applied with this equipment configuration. Near White Metal Blast.
SYSTEM PL-250	CorroPipe II PW, In One Multi-Pass Coat, Using Standard Plural Component Equipment. Near White Metal Blast.
SYSTEM PL-255	CorroPipe II PW Ultra, in One Multi-Pass Coat, using standard plural component equipment. Near White Metal Blast.
SYSTEM PL-300	CorroPipe 3000 in One Multi-Pass Coat, using Standard Plural Component Equipment. Near White Metal Blast.
SYSTEM PL-505	CorroPipe II Aliphatic in One Multi-Pass Coat. Use Fast Set with Standard Plural Component Equipment or Delayed Set with Whip End Configuration. Commercial or Near White Metal Blast (preferred).
SYSTEM PL-600	CorroPipe 'S' applied in 2 to 3 coats. Use C-10 catalyst (slow setting, permits 5-6 wet mils per coat), C-7 catalyst (faster setting, permits 8-10 wet mils per coat) or C-4 catalyst (fastest setting, permits 12-15 wet mils per coat). Single Component Equipment. Near White Metal Blast.
SYSTEM PL-650	CorroPipe II Omni basecoat of 20 mils, plus CorroPipe 1:4 Aliphatic topcoat (3-5 mils) (applied by single component airless spray)
SYSTEM PL-700	GalvaClad Aromatic fast set, plural component, applied in a one coat, mutipass technique. Use GalvaGrip surface conditioner or a brush blast (SSPC-SP7).
SYSTEM PL-705	GalvaClad II Ultra fast set, plural component, applied in a one coat, mutipass technique. Use GalvaGrip surface conditioner or a brush blast (SSPC-SP7).
SYSTEM PL-710	CorroPipe Zinc Rich Primer, 'Mix-and-Apply', single component spray one coat. Topcoat with 1 or 2 coats of CorroPipe 1:4 Aliphatic, 'mix and apply', single component spray. Use GalvaGrip surface conditioner or a brush blast (SSPC-SP7).

GENERAL COMMENTS

"One Multi-Pass Coat" refers to the application of several passes, typically in a cross-hatching manner, to achieve the desired build. If sags occur, wait a few seconds between passes.

"Single Component Equipment" means airless pump, hose and gun drawing from a pail or drum.

"Standard Plural Component Equipment" means two component 1:1 airless pump with primary heaters, dual heated hose and gun with in-head mixing.

"Whip End Configuration" means as above but remove in-head mixing type gun and replace with manifold, several feet of standard airless hose and regular airless spray gun.

Always use angular mineral abrasives or steel grit for blasting, never shot. Synthetic grit or slag-based abrasives may cause contamination of surface and must be used with extreme caution. 24 to 32 grit size recommended.

With all systems, "fogging" one or two mils on corners and edges improves performance.

1 mil equals .001 inches and is approximately equal to 25 microns.

This Product Selector Guide is not intended to be definitive.

In some cases a clear choice may not be immediately obvious, or more than one option is available. Detailed technical data sheets, specifications and application instructions are available to assist in choosing a suitable system, or contact a Madison representative for further guidance in making your selection.

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