Application of Coatings for Steel Water Pipe

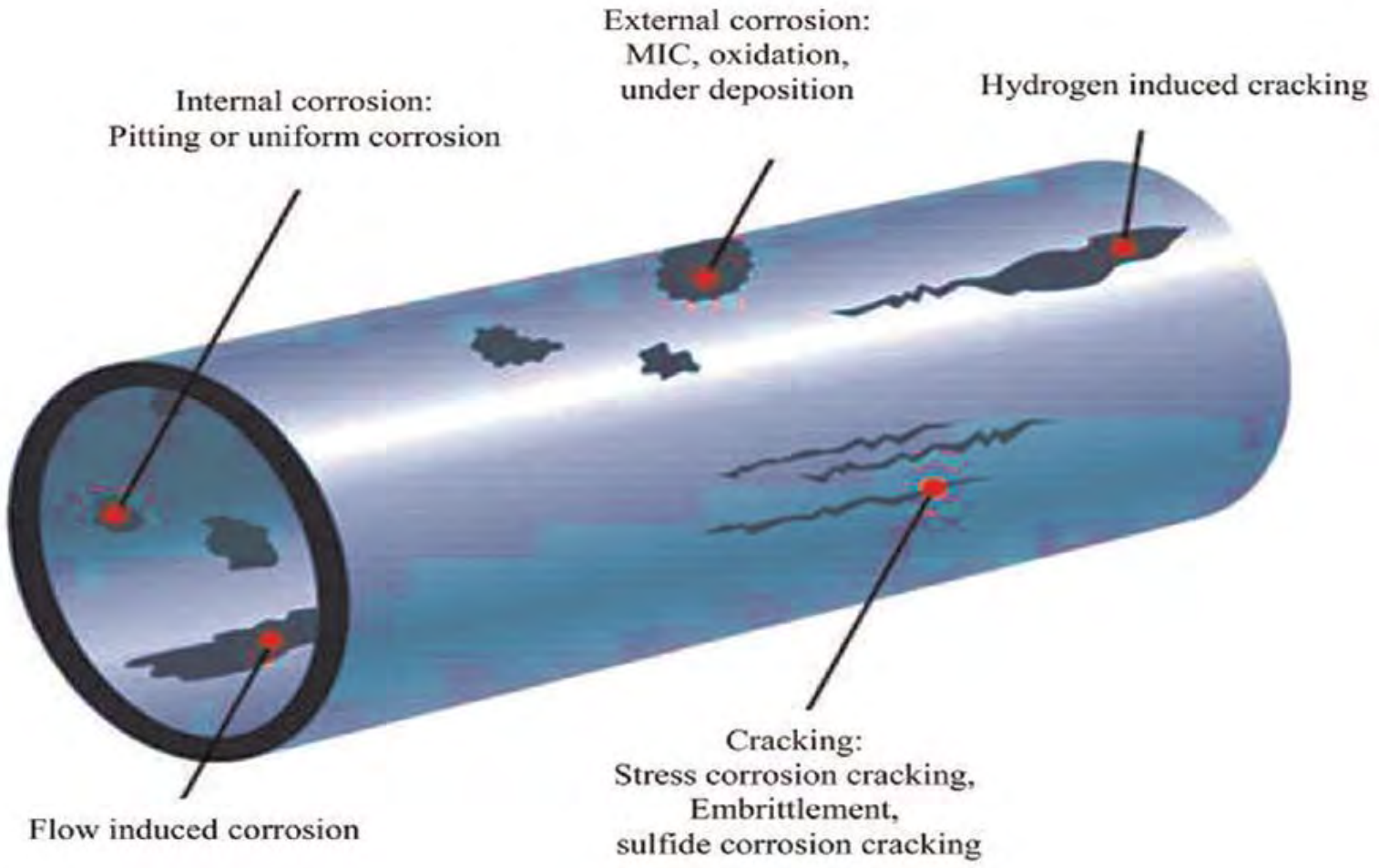
Sean Padilla

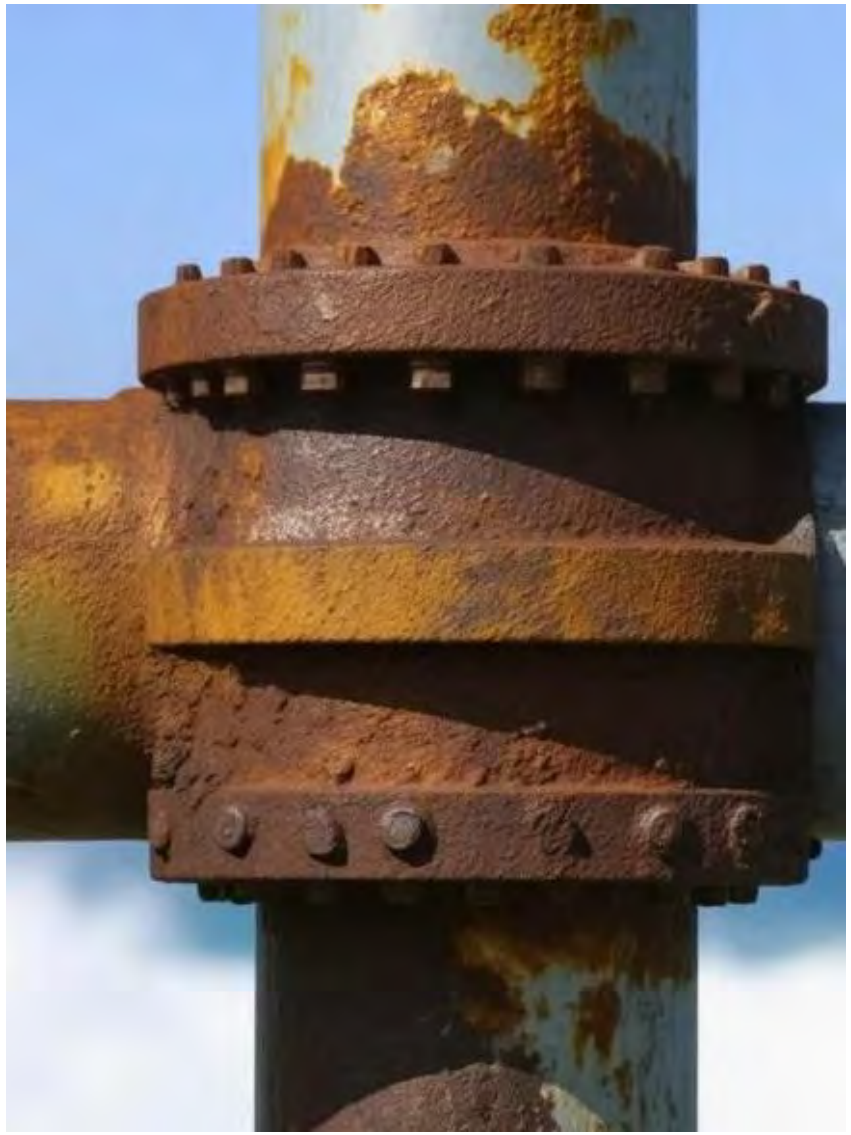
Mobile Coating Solutions, Inc.

Purpose of Protective Coatings

- Corrosion Prevention
- Extended Service Life
- Water Quality Protection
- Reduced Maintenance & Operation Costs
- Regulatory & Specification Compliance

Corrosion and Microbiologically Influenced Corrosion





Cleanliness: The removal of salts, oils, and mill scale

- ***Salts attract moisture and cause osmotic blistering, which leads the coating to lift from the steel. Even tiny amounts beneath the coating can result in under-film corrosion.***

- ***Oils and grease create a barrier between the coating and steel. They also reduce adhesion and long-term durability.***

- ***Coatings bond to the scale, not the steel. As the scale expands and contracts, it causes the coating to lose its grip.***

Abrasive Blasting

Surface Preparation

Typically, material is blasted to (SSPC-SP6 (Commercial blast), SP10 (Near white metal blast) or SP5 (White metal blast) depending on the specification or service requirement.

SSPC-SP 10/NACE No. 2 Near-White Metal Blast Cleaning

SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning

Anchor Profile

Typical profiles range from 1.5 to 3.0 mils, depending on the coating requirement.

Environmental Controls Humidity, Dew Point, and Temperature

- **High humidity raises the risk of condensation on steel surfaces. Excess moisture can lead to flash rust, blistering, or amine blush (in epoxies). Most coating manufacturers specify a maximum relative humidity, often 85% or lower.**

- **Dew Point: Condensation occurs when the steel temperature reaches or drops below the dew point. If condensation forms, coatings might not adhere properly and can trap moisture underneath the film.**

- **Temperature (Air, Steel, Coating Material) Each coating has a specified minimum and maximum application temperature. Too cold causes slow curing, sagging, poor film formation, and improper crosslinking. High temperatures result in solvent entrapment, dry spray, and reduced working time.**

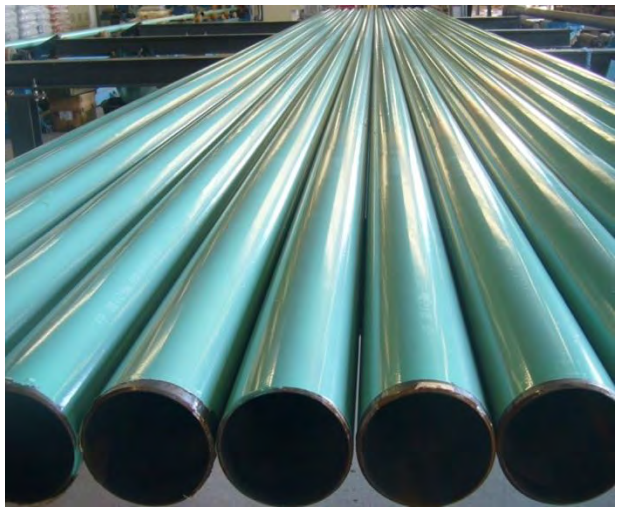
NSF

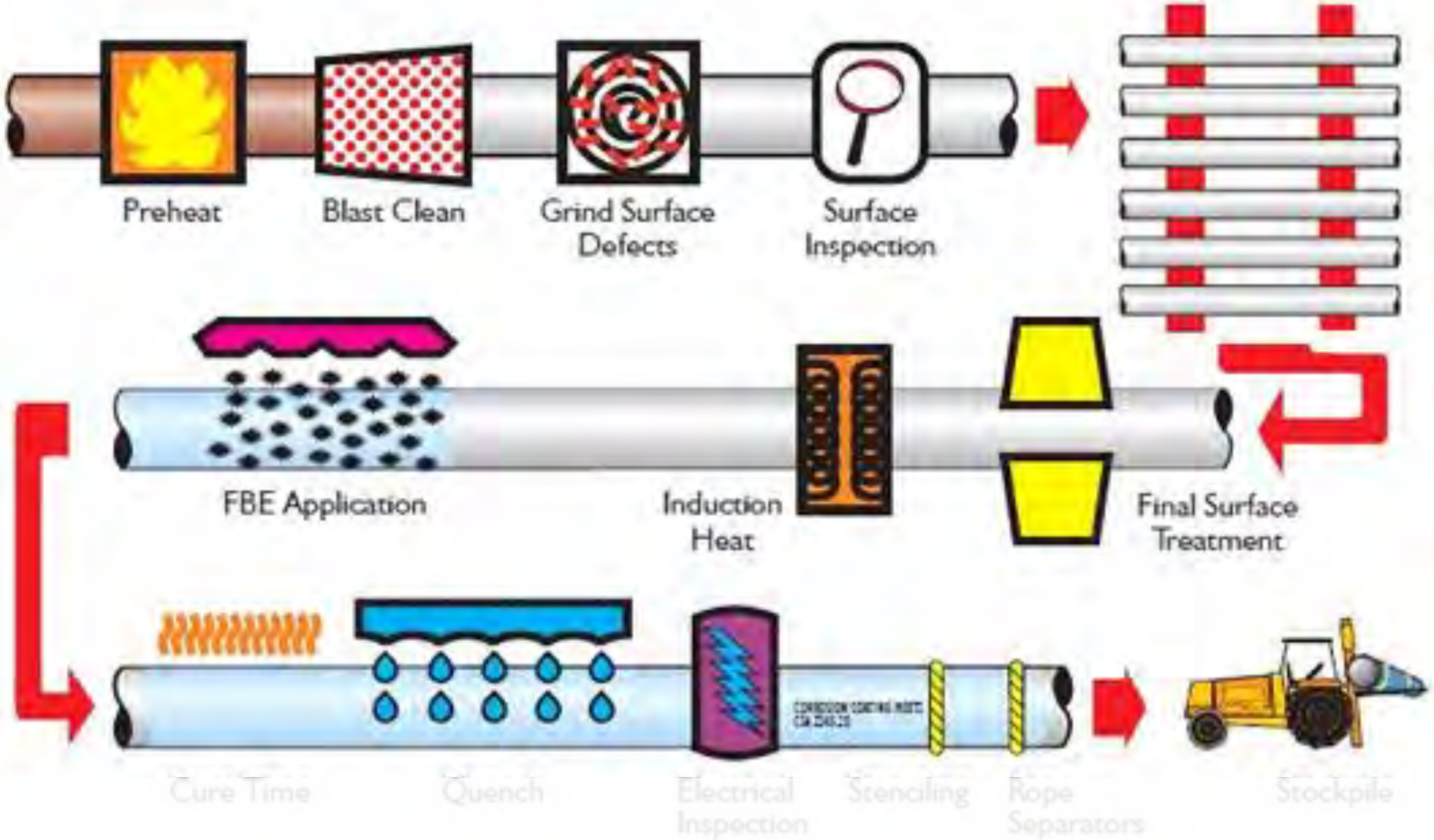
Certified to
NSF/ANSI/CAN 61

Interior Linings

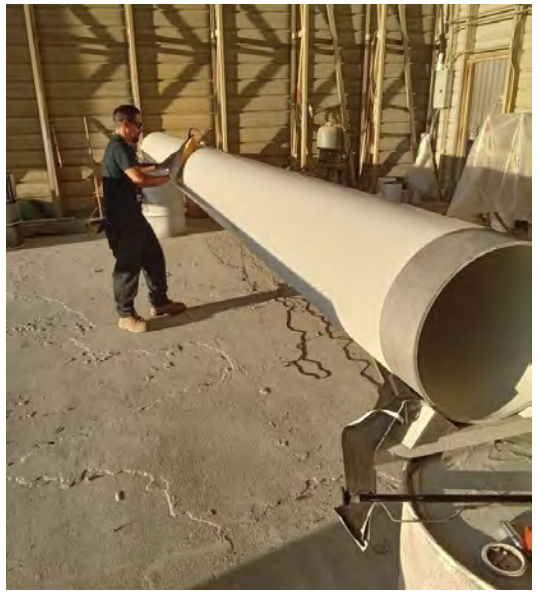
AWWA C205 Standard

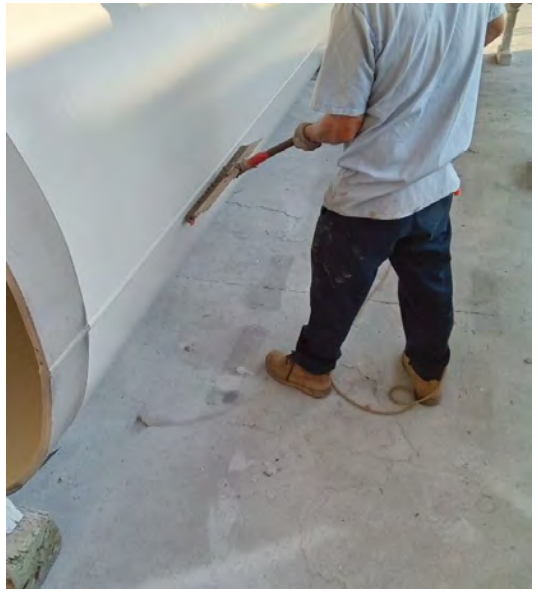
Fusion-Bonded Epoxy Linings & Coatings AWWA C213





FBE Application Process



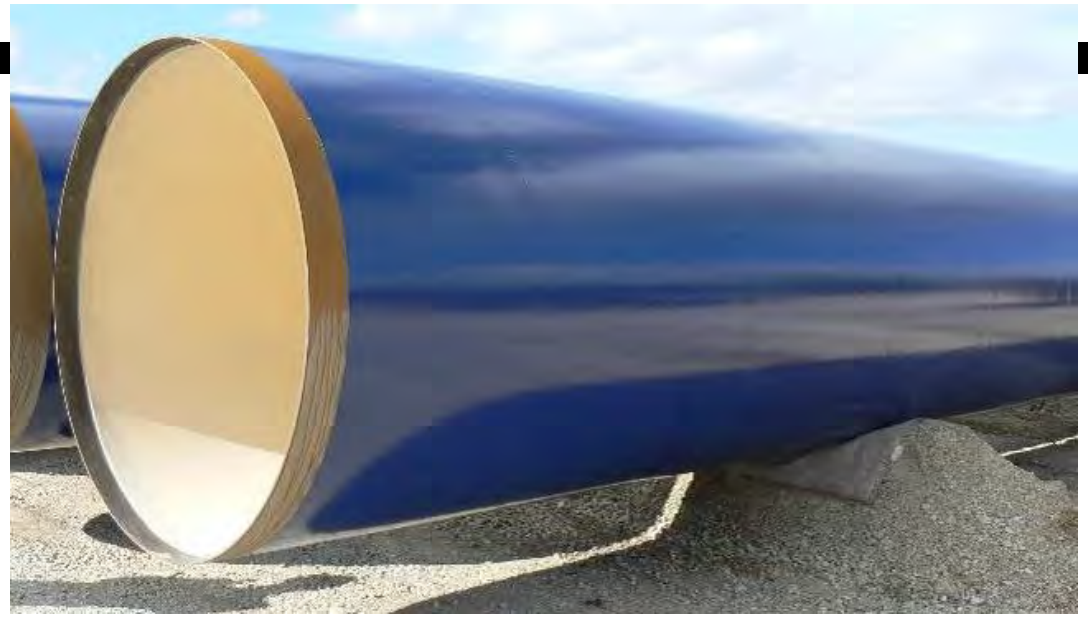


Epoxy Linings & Coatings AWWA C210

- Liquid epoxy coatings are commonly used to protect steel water pipelines from corrosion. The application process is designed to create a strong, continuous barrier between the steel and the surrounding environment.

Aromatic Polyurethane Linings & Coatings AWWA C222

- Aromatic polyurethane coatings are tough, flexible protective layers used on steel water pipelines to guard against corrosion, abrasion, and mechanical damage. Their application process is designed to create a strong, seamless film that bonds tightly to the steel surface.



Tape Wraps AWWA C209 & C214

- Tape wraps are effective because they use a multi-layer, cold-applied polyethylene tape system that provides excellent corrosion protection. Ideal for long continuous pipe lengths, multi-layer protection, and outstanding dielectric strength. C209 coatings are perfect for field work and irregular shapes, quick and easy to install. C214 & C209 coating systems are cost-efficient and easy to apply.

C214 Tape Application

Multicoat Paint System (AWWA C218)

Why Steel Pipe Coatings Fail and How Proper Application Prevents It.

Thank you,
Q&A.

MOBILE COATING SOLUTIONS, INC.