

Technology

Mineralization is the process of growing very thin mineral layers on metal surfaces. The minerals are formed when reactants are delivered to the surface of a metal via novel modifications of known base formulations (e.g., gel, grease, and aqueous suspension). Substrates contribute donor ions to react and/or interact with delivered reactants, forming a very thin layer of mineral that is chemically bonded to the surface of the substrate and has been measured to be only a few monolayers thick. In many applications, lattice-forming oxides anchor to this surface adhesion layer and polymerize into a three-dimensional inorganic framework structure until the final coating thickness is 50-200 angstroms. (A piece of paper is 1,000,000 angstroms thick.)

E-2000 has been developed to deliver the mineral-forming reactants in a wide variety of formulations. Patents and patent applications cover the delivery of novel formulations as well as the mineralized layer that is formed as a result of an interaction between the applied coating and the underlying substrate. The presence and uniqueness of the mineralized layer can be confirmed by conventional analytical surface methods such as x-ray Photoelectron Spectroscopy (XPS) or Atomic Force Microscope (AFM).

Benefits of Mineralization:

- Outstanding Corrosion Prevention.
- Versatile and flexible application methods for affordable problem solving, permitting even direct application on rusted surfaces.
- Fast and efficient mineralization, including a unique self-healing mechanism.
- Environmentally benign.

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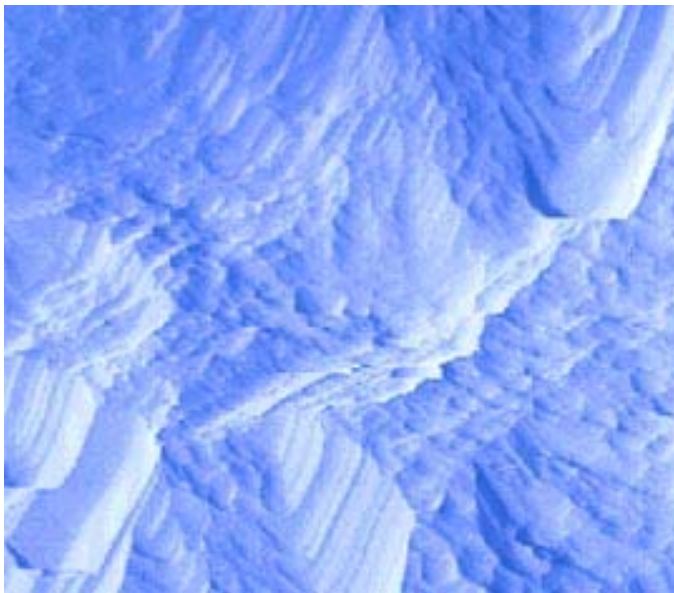
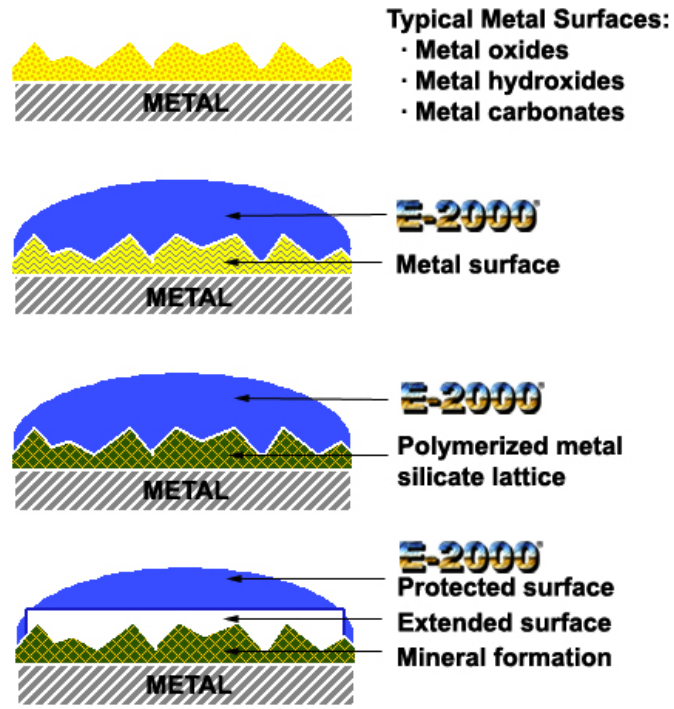
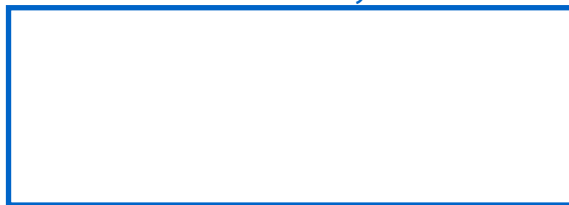


Figure 1 (above) A composite photograph made of tiled images of a patented surface.

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This information is based on our best knowledge, but we cannot guarantee the results to be obtained.

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E-2000

THE SOLUTION FOR CREVICE CORROSION IN ANCHOR CHAIN DETACHABLE LINKS





THE SOLUTION FOR CREVICE CORROSION IN ANCHOR CHAIN DETACHABLE LINKS

E-2000 is a non-toxic, non-drying coating, which offers outstanding ambient temperature protection for the toughest crevice corrosion (CC) for ferrous applications. **E-2000** has patented mineralization technology inside (U.S. Patent Number: 6,010,985). This product is protected by US and non-US patents as well as US and non-US pending patent applications. The special formulation of compounded ingredients in **E-2000** creates a corrosion resistant mineral barrier roughly 50 angstroms deep onto the surface of the metal.

E-2000 prevents corrosion from occurring, and stops existing corrosion from advancing. It requires minimal surface preparation and is environmentally benign.

Anchor chain detachable links are used in marine applications where disassembly of lengths of chain is necessary. Corrosion of the interior of the detachable links is a problem because it causes longer disassembly time or requires destruction of the link. **E-2000** replaces the legacy preservatives which have proven to be ineffective or are lead-containing (*toxic*). The use of **E-2000** to fill the internal cavities of the anchor chain detachable links protects the internal surfaces and tapered locking pin.

HOW DOES E-2000 WORK?

E-2000 works in three basic ways:

- 1. Barrier system** – The specially formulated products have great adhesion characteristics and are hydrophobic to help keep moisture away from the substrate.
- 2. Mineralization** - Growing an engineered surface, or surface conversion – creating a surface which resists corrosion even if moisture gets to it (*see back page for detailed explanation*).
- 3. Buffering system** – If moisture migrates through the gel, it is buffered to a high pH which is alkaline enough not to corrode metal.

TECHNICAL INFORMATION

NSN:	8030-01-484-6227
Temperature:	0° to 220°F (sustained) with 250°F spikes
Appearance:	Creamy, tacky, blue color
Properties:	Viscosity – Brookfield = 200,000-250,000 cps V.O.C. – EPA Method = None Specific Gravity – Gravimetric = 0.98 Corrosion = ASTM B117 > 500 hours @ 25 mils thick
Surface Prep:	Rusted surfaces will require removal of loose scale and dust to allow the E-2000 ingredients to contact the point of corrosion.
Coverage:	Recommended thickness is between 0.025 to 0.060 inches.
Clean Up:	Material can be removed from tools with Elisha Cleaner , a citrus-based cleaner formulated for clean-up of personnel and equipment, or a strong household detergent. Dispose of waste according to applicable state and federal rules and regulations.
Safety:	Protective gloves and eye protection recommended. Avoid prolonged contact with skin or contact with eyes. Read product MSDS prior to application.
Odor:	Slight paint-like odor.
Shelf Life:	Greater than two years.
Packaging:	Available in standard one-gallon and five-gallon containers as well as 10.5-oz. caulking tubes.
Environment:	No toxicity was observed under the conditions of testing. Formulated from non-toxic materials with good environmental stability for long service installations. Follow MSDS guidelines.