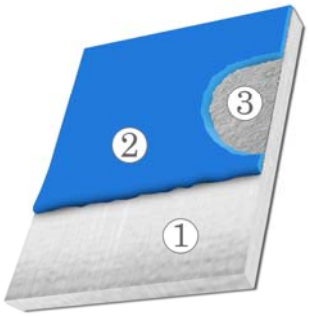
THE MINERALIZATION PROCESS

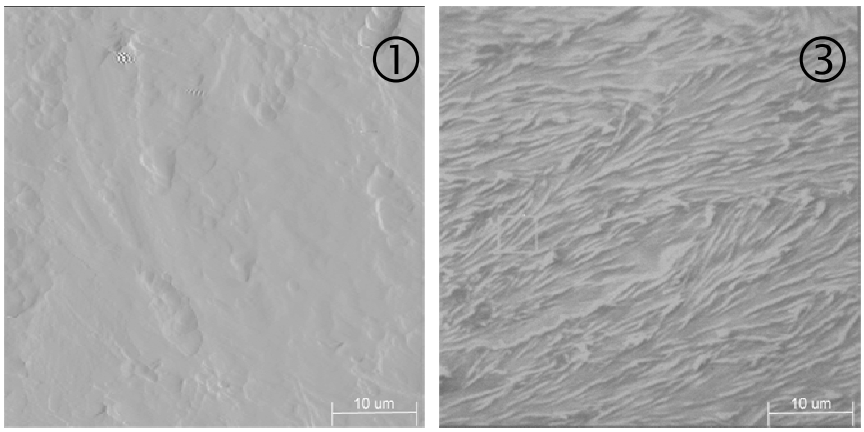
HOW THE REACTIVE GEL™ CORROSION TREATMENT WORKS:



When the ferrous (steel) surface (1) is covered with a layer of reactive gel (2), the metal surface reacts with components in the gel to form a mineral layer (3). This thin glasslike layer (3) acts as a barrier between chlorides and the metal surface, thus providing corrosion resistance.

The mineral layer (3) has a thickness of 50-200 angstroms, only 0.01% as thick as a piece of paper.

Although the thin mineral layer can be damaged by mechanical abuse, there is extra protection built into the system, i.e.:



Bare Ferrous (steel) Surface **Mineralized Surface**

- If the mineral surface is scratched or damaged, and there is residual gel in contact with the area, the mineral layer will be regenerated by the gel ingredients.

- The gel contains a buffering agent, which raises the pH of water at the surface of the steel to 10 or above, a level unfavorable for corrosion of ferrous substrates. (Another formulation for aluminum adjusts the pH to 6-8).

Mineralization technology has also been used for specific industry solutions in the following sectors:

- Oil & Gas
- Petrochemical
- Brewery, dairy and food processing
- Mining
- Pharmaceutical

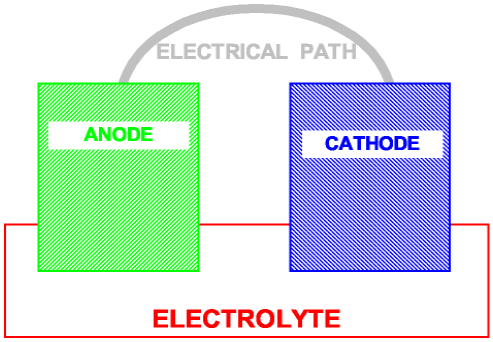
Note: The gels described in this flyer are protected by U.S. and International patents issued and applied for.

P.O. Box 755
Ennis, TX 75120
PH: (214) 515-5000
FX: (972) 875-9425

THE CORROSION PROCESS

Metal corrosion begins when four ‘ingredients’ come together

- An anode
- A cathode
- An electrolyte (e.g., *moisture)*
- An electrical path joining the anode and cathode



The anode is the part of the metal where corrosion occurs; the anode sacrifices itself to protect the cathode. The anode releases positively charged metal ions into the electrolyte and electrons are left behind in the metal. These electrons flow through the metal to protect the cathode. The cathode is protected because various ions or compounds in the electrolyte consume the electrons.

An electrolyte is a solution capable of conducting electrical current in the form of ionic flow. An electrical path is the connection between the anode and cathode where current in the form of electrons can flow. Free electrons do not flow in the electrolyte, only in a metal path.

Corrosion occurs because anodes and cathodes are inherent in *ALL* metals, and *ALL* metals are electron conductors *(the electrical path).* Therefore, 3 of the 4 "ingredients" necessary for corrosion to begin are inherently present in *EVERY* metal!

Anodic and cathodic areas develop where chemicals have been deposited, where there are temperature differences, and in damp areas. Chlorides and other industrial contaminants in the electrolyte can also cause the area to become anodic. The contamination may be present on the metal surface before it is coated or insulated. Once these areas become wet, corrosion begins.

In summary, metals contain anodes, cathodes, and an electrical path. The only item needed for corrosion to occur is an electrolyte. The anodic *(oxidation)* and cathodic *(reduction)* reactions are equivalent and simultaneous.

THE RG FAMILY OF PRODUCTS IS PROTECTED BY NUMEROUS U.S. AND FOREIGN PATENTS

Manufactured By:
Polyguard