DISPERSOL-2000-E

ZINC – PHOSPHONATE - ORGANIC CORROSION AND SCALE INHIBITOR FOR OPEN RECIRCULATING COOLING WATER

Usages:

DISPERSOL-2000-E provides excellent corrosion and deposit control for a variety of open recirculating cooling water systems, where deposit and corrosion free surfaces are required for system life and efficiency.

DISPERSOL-2000-E is designed to provide minimum environmental impact while providing highly effective corrosion control.

DISPERSOL-2000-E is very effective in low hardness, low alkalinity corrosive waters. It contains special filming ingredients to establish protective barriers against corrosion on ferrous metal surfaces. It also contains a proprietary blend of organic and polymeric sequestrants and dispersants to promote access of the corrosion control actives to corrosion sites.

Features:

DISPERSOL-2000-E is a combination of an organophosphorus compound, zinc and polymer deposit control agent. This unique blend assures excellent conventional cathodic and anodic corrosion control.

The organophosphorous act as corrosion inhibitors, absorbing on to metal surfaces to form a protective film. This film acts as a barrier, denying access of oxygen to the metal surface, thus stifling the corrosion process.

The incorporation of zinc into **DISPERSOL-2000-E,** gives additional cathodic metal protection. This results in a much more resistant and adherent barrier film on the metal surfaces than with other traditional blends.

The use of Benzotriazole in the product gives additional protection to the yellow metals.

EFFECTIVE AGAINST PRIMARY WATER STRESS CORROSION CRACKING (PWSCC)

DISPERSOL-2000-E is extremely effective against primary water stress corrosion cracking (PWSCC).

Ample measures have been taken to cope with this situation, including residual stress relief by heat treatment, modified scheduled inspections, and the use of tubing materials that have high resistance to PWSCC in modern power plants.

- **Effect of DISPERSOL-2000-E addition on PWSCC**

DISPERSOL-2000-E addition is employed to prevent PWSCC in alloy 600MA tubing

Under simulated primary accelerated corrosion test conditions at 360°C, the susceptibility of alloy 600MA to PWSCC decreased with the addition of **DISPERSOL-2000-E**.

- **Investigation of the Mechanism of DISPERSOL-2000-E Inhibition of PWSCC**

Since it is considered that the condition of the surface oxide film may have a close relationship to the initiation of PWSCC, it is investigated the effect of **DISPERSOL-**

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2000-E addition on the condition of the stainless steel's alloy 600MA surface oxide film in detail.
The addition of **DISPERSOL-2000-E** thinned the surface oxide film, and the corrosive products formed on the oxide film also decreased in quantity.

This result suggests that **DISPERSOL-2000-E** is effective in inhibiting the corrosion reaction.

- The surface oxide film was of double-layer structure when **DISPERSOL-2000-E** was not added. The outer layer was rich in iron composition and poor in corrosion resistance, and the inner layer was rich in chromium and highly corrosion resistant.
- When **DISPERSOL-2000-E** was added, the outer layer rich in iron content disappeared, leaving only the highly corrosion resistant chromium layer.

Advantages:

- STABLE even at elevated skin temperatures.
- EFFECTIVE corrosion control.
- ANTIFOULANT properties maximize heat transfer and minimize under-deposit corrosion.
- PROTECTS against galvanic corrosion in mixed-metal systems.
- EXCEPTIONALLY EFFECTIVE control of pitting of ferrous metals.
- CONVENIENT single-package treatment for corrosion and fouling.

Feeding:
Recommended feeding of **DISPERSOL-2000-E** is 30-60 ppm in the circulating water.

The pretreatment dosage should be 50-100 ppm for a two-week period after which the concentration may be allowed to revert to the maintenance level.
Zinc (Zn^{++}) should be maintained between 2,5-3ppm at all times.
pH should be maintained between 6,5-8,3 at all times.
The above limits are crucial for the proper operation of the system.
DISPERSOL-2000-E should not be used when the stability index of the system water is below 6.0.
The recommended feeding method is continuously as received to an aqueous dilution to any convenient point, from which good distribution is ensured.
Feeding equipment should be constructed of a suitable plastic material such as polyethylene, polypropylene or PVC.
DISPERSOL-2000-E must be fed continuously to the system by a proportioning pump.

Handling:
Avoid contact with skin and eyes. Wear suitable protective equipment (refer to MSDS for further information).

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