

OptiSperser* APFe104

oxygen scavenger / internal boiler treatment

Water Technologies & Solutions fact sheet

- Controls preboiler oxygen corrosion
- Combines two specific high-performance polymers for hardness and iron oxide control respectively
- Maintains clean heat transfer surfaces
- Easy to handle liquid formulation
- Environmentally preferred

description and use

OptiSperser APFe104 is an alkaline blend of sodium sulphite, a proprietary blend of two polymeric dispersants, and a molybdate tracer, which allows accurate measurement of the product level in the boiler water.

OptiSperser APFe104 combines a carboxylate- based polymer for hardness control and a SUEZ proprietary iron dispersant. This polymer blend reflects the most advanced boiler water hardness and iron dispersant combination that is available in the market place today.

In some systems, a supplemental feed of either neutralising amine or filming amine is recommended to provide complete condensate corrosion protection.

All the ingredients in OptiSperser APFe104 are approved for FDA 21CFR173.310 - boiler water additives for use in the preparation of steam that will contact food, up to a maximum level of 2700 ppm OptiSperser APFe104 in the boiler water.

typical applications

Oxygen corrosion "pitting" is commonly encountered in the hot well, feedwater lines, economisers and condensate system. Oxygen pitting can lead to equipment failure and leakage in a relatively short period of time.

Deposit formation on boiler heat transfer surfaces is the principal cause of tube failure due to overheating. Hardness leakage from the external pretreatment systems and iron and copper corrosion products returning with the condensate are the major deposit causing contaminants. It is critical that their presence in feedwater be controlled to inhibit accumulation on boiler tube surfaces and thus minimise the potential for boiler tube failure.

Deposition is controlled by several interactive mechanisms: complexation, crystal modification, and dispersion. These mechanisms are complex and vary with operating conditions. The interaction of all three, deposit control mechanisms delivers optimum results.

The first mechanism in an all-polymer program is *complexation* of feedwater contaminants.

The second is *crystal modification*. The polymer interferes with the crystal growth of calcium and magnesium compounds. The charged functional groups of the polymer absorb onto the surface of the crystal nuclei, inhibiting the rate of crystal growth.

The final mechanism is *dispersion*. As the polymer adsorbs onto particles and surfaces, it imparts a negative charge to both. The high concentration of similar charges causes particles to repel each other and away from tube surfaces. Contaminant particles, which have been dispersed in this manner, are removed through the boiler blowdown.

treatment and feeding requirements

Feedpoint - OptiSpense APFe104 can be fed to the hot well, deaerator storage section or suction side of the boiler feedwater pump if there is no attemperation spray water take off point after the boiler feedwater pump.

Feedrate - The initial feed rate calculations for OptiSpense APFe104 are based on the level of dissolved oxygen or calcium hardness and iron in the boiler feedwater. Feed rate control is achieved by measuring either the boiler water sulphite reserve and/or the boiler water molybdate reserve.

Dilution - OptiSpense APFe104 can be fed neat or diluted to any convenient strength with softened make-up water or condensate.

general properties

The physical properties of OptiSpense APFe104 are shown on the Safety Data Sheet, a copy of which is available on request.

packaging information

OptiSpense APFe104 is a liquid blend and is available in a wide variety of customised containers and delivery methods. Contact your local SUEZ representative for details.

safety precautions

A Safety Data Sheet containing detailed information is available on request.

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