NALCO 780

Chemical Oxygen Scavenger

PRODUCT DESCRIPTION AND APPLICATION

NALCO 780 is a traditional catalyzed, nonvolatile, inorganic oxygen scavenger that can be used in systems operating at pressures up to 62 barg (900 psig). **NALCO 780** is designed for systems that do **not** have a **mechanical deaerator** that performs according to **design specifications** (typically <below 20 ppb as dissolved oxygen) or have **malfunctioning mechanical deaerators**. **NALCO 780** begins to break down at pressures of 43 barg (620 psig) and is completely decomposed at pressures above 62 barg (900 psig).

PHYSICAL & CHEMICAL PROPERTIES

Form:	Liquid
Colour:	Yellow
Odor:	Pungent
Boiling point:	100ºC
Viscosity @ 20ºC:	6.0 cps
Relative Density @ 25ºC:	1.31
pH (Neat @ 20ºC):	3.8
Flash Point (PMCC):	Not Available
Solubility in water:	Complete
Freezing Point:	-18ºC

These properties are typical. Refer to the Material Safety Data Sheet for the most current data.

ACTIVE CONSTITUENTS

Sodium bisulfite
Cobalt sulfate

REGULATORY APPROVALS

When use situations necessitate (Check with Plant Manager or Process Area Superintendent), **NALCO 780** is in compliance with the United States Food & Drugs Administration (F.D.A.) regulations pertaining to Boiler Water Additives (21 CFR 173.310).

MATERIALS OF COMPATIBILITY

Compatible	**Not Compatible**
Buna-N	Aluminium
EPDM	Brass
Hypalon	Carbon Steel
Neoprene	Copper
Plasite 6000	Nickel
Polyethylene	Plasite 4005
Polypropylene	Plasite 7122
Polyurethane	
PVC	
Teflon	
Stainless Steel 304 (may discolour)	

Stainless Steel 316 (may discolour)
Vinyl
Viton

DOSAGE AND FEEDING

Without a deaerator, the oxygen content of the feedwater in equilibrium with the atmosphere as function of temperature is given below in Table One.

-- Table One --

Temperature (ºC)	Dissolved O2 (mg/l)
30	7,4
40	6,1
50	5,4
60	4,6
70	3,7
80	2,9
90	1,7
95	0,7

Dissolved oxygen measurements are required to determine the dosage of **NALCO 780**. The dosage of **NALCO 780** is based on the dissolved oxygen level in the feedwater and the required residual sulfite concentration in the boilerwater. The residual range for **NALCO 780** should be controlled based on the cycles of concentration and the pressure of the boiler. The specification for the residual range is based on the applicable **industry standard** and/or the **boiler manufacturers specification**.

The presence of a residual NALCO 780 does not mean that the oxygen has been effectively scavenged as oxygen and scavenger can coexist in the feedwater system.

The use of NALCO ELIMIN-OX, NALCO 4221, NALCO 1700 or NALCO 77213 is encouraged at boiler pressures above 40 barg. These products will prevent sulfite generation, condensate contamination and subsequent corrosion damage.

Feeding

1. **NALCO 780** is best fed to the deaerator storage section or, for systems without deaerator, into the boiler feedwater tank.
2. **NALCO 780** MUST be fed separately and not mixed with other boiler treatment chemicals, either neat or in dilution.
3. **NALCO 780** can be dosed into the boiler feedwater line, just where it leaves the boiler feedwater tank.
4. **NALCO 780** must be fed neat (undiluted). Diluting oxygen scavengers will cause loss of oxygen scavenging ability.
5. If feedwater is used for attemperation, **NALCO 780 MUST** be fed down-stream of the attemperation water takeoff. If oxygen removal from attemperation water and attemperation line protection are needed, use an organic scavenger.
6. Feed **NALCO 780** via a NAL-QUILL® injector.
7. A steam heated feedwater tank with automated temperature control must be installed whenever possible.
8. To minimize iron transport to the boiler, a **minimum boiler feedwater pH of 8.5 and above is generally recommended** in boiler feedwater chemistry guidelines.
9. Feed **NALCO 780** continuously. Interruption in feed will result in corrosion and/or scale formation.

10. **NALCO 780** can be used for boiler lay-up.

ENVIRONMENTAL AND TOXICITY DATA

Refer to the product's Material Safety Data Sheet for all aquatic and mammalian information.

SAFETY AND HANDLING

Read carefully the label and Material Safety Data Sheet for complete handling information before using this product. Sulfites can cause an allergic reaction in sensitive individuals.

STORAGE

NALCO 780 has a maximum recommended in-plant storage life of one year in factory sealed containers. Keep container closed when not in use. The maximum storage temperature is 49ºC. All storage and feeding equipment should be built of compatible materials (See section "Materials Compatibility").

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative. For more news about Nalco Company, visit our website at www.nalco.com.

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

NALCO is a registered trademark of Nalco Company (9-03)

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