Cage Mounted SNSAFE System

BIO-FOULING PREVENTION SYSTEM

**PUMP OVERVIEW**
The ClydeUnion S&N Pumps SNSAFE system offers the most comprehensive bio-fouling prevention solutions package in the market. Strategic implementation of our systems increases the service life.

- Delivers an impressed DC current from a power converting control panel to strategically placed copper anodes in the seawater system
- The passage of the DC current through the copper anode releases copper ions into the seawater flow at a pre-determined rate
- The copper ions deter the entry and growth of fouling organisms

**DESIGN**
- Anode cage assembly attaches to the motor housing of an electric submersible pump or the suction of a vertical turbine pump
- The power supply and earth return cables run from the submersed anode to the topside mounted control panel
- Submerged under water in the caisson

**EFFECTS OF BIO-FOULING**
- Creates a thermal barrier around a pump motor and reduces the amount of heat that can be dissipated
- Accelerates corrosion by impingement/erosion, pitting and cavitation
- Reduces fluid flow throughout the piping of the vessel/rig
- Restricts and/or creates turbulent fluid flow at pump intakes

**SYSTEM BENEFITS**
- Eliminates bio-fouling macro-organisms
- Low initial cost
- Replaceable anodes
- Minimal maintenance
- Pre-calculated anode life
- Environmentally safe
- Low operating cost
- Minimal space requirement

ClydeUnion Pumps
S+N
IN THE FIELD

1. Cage mounted system just before installation
2. Cage mounted system 11 months after installation with no sea life growth
3. Pump intake screen 11 months after installation with no sea life growth

EFFECTS OF SEA LIFE GROWTH ON PUMPS

Sea life growth covering the pump bowls and intake screen
Sea life growth inside the pump intake and on the pump shaft