



Marine Growth Anti-Fouling Systems

Cuprion™

OFFSHORE PLATFORMS

REVISION 1

Bio-Fouling of water intake pumps and pipework on Offshore Platforms can be a major problem, causing expensive equipment damage and pipework blockages, leading to shut down of vital seawater supplies.



In the case of fire water systems Crewe Safety and Structure Integrity must be considered. In addition, repairs to damaged pumps and pipe work are both costly and time consuming.

Maintenance Managers would consider any remedial actions involving pipe section removal, repair, cleaning and re-installation as major refurbishment work on any operating offshore facility.

Cuprion™ - THE SOLUTION

Cathodic Protection Co. Limited has developed a range Cuprion™ anti-fouling systems to protect submerged pumps, seawater intakes and associated pipework against marine growth. Originally the Cuprion™ system was developed and utilised for North Sea application during the Early 1970's. Today the system is specified for use on Offshore Platforms worldwide by many of the major Oil & Gas offshore operators.

Cuprion™ operates on electrolytic principles, employing a small dc current flow (generally less than 1 Kw). This current flow energises copper and aluminium anodes to produce a fully effective, anti-foulant dosing solution. Selected dosing levels vary slightly to suit location and application, however maximum dosing limits utilised for design purposes are 25 µg/litre and 4 µg/litre for copper and aluminium respectively.

Copper is a natural biocide /algacide and provides complete protection from marine growth with no adverse environmental impact.

Aluminium anodes produce aluminium hydroxide, which combines with the copper ions holding them in solution, keeping pipe work blockage free. Aluminium hydroxide also helps to arrests corrosion on internal pipe surfaces.



The Cuprion™ system has been successfully applied on all types of seawater intakes from submerged pumps to open intake sea chests. The design of the electrode units can be adapted to suit all application requirements, but are usually flange mounted on submerged pumps or bolted to the wall of a sea chest.



Where space or weight restrictions are design considerations, CPCL have developed a deck mounted system that utilises an electrolysis tank with required seawater flow and return connections.

The Cuprion™ anodes are simply mounted in the tank and energised to produce anti-foulant solution, which is delivered to the intake area via suitably rated pipes or hoses.



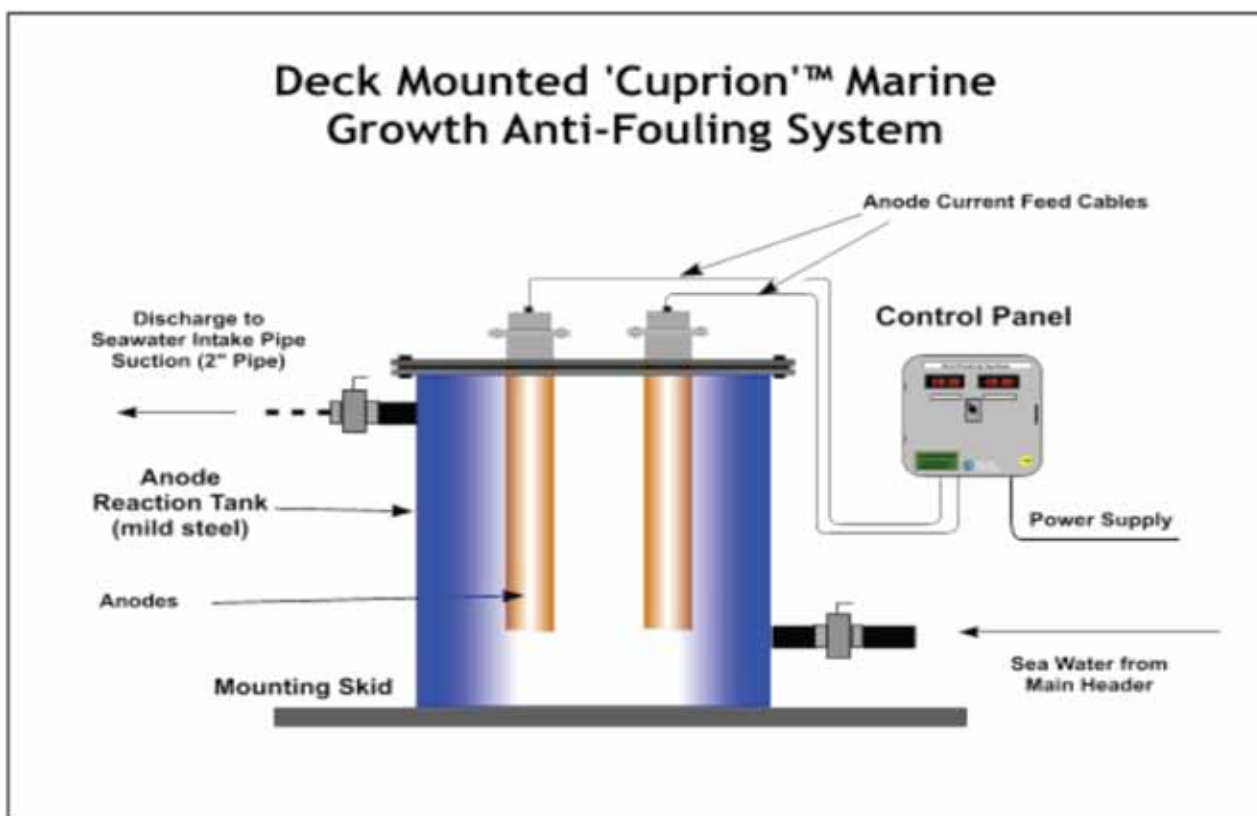
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The electrolysis tank is generally mounted on a steel plinth adjacent to the dc power unit, making the complete system integral, ideal for maintenance operations. Anti-Fouling electrodes take around 30 minutes to replace.



Cuprion™ - IN THE OFFSHORE INDUSTRY

Cuprion™ systems have been installed on all types of offshore structures worldwide, indicative list below.

Field/Platform	Country	Client	System Details
Angostura Gas Project	Trinidad	BHP Billiton	Firewater & Jockey Pumps. Deck Mounted System.
Cleeton	UK	BP Exploration	Fire & Sea Water Pumps. Pump Mounted Electrodes.
Lyell Field Power Buoy.	UK	Monitor Oil	Cooling Water Intakes. Sea Chest Mounted Electrodes.
Orlan, Sakhalin Island	Russia	Exxon Mobil	Fire/Seawater Lift Pumps, Pump Mounted Electrodes.
Panna Capacity Enhancement	India	WPIL	Seawater Lift Pump, Pump Mounted Electrode.
Rough Platform Upgrade	UK	Amec/Centrica	Change from ECU to Cuprion™. Cooling, Fire & Service Water. Pump Mounted Electrodes.

To obtain additional technical or product data sheets on our Anti-Fouling products please contact us on email sales@cathodic.co.uk. For further information on CPCL visit our website at www.cathodic.co.uk.