



Seawater Pipework Antifouling System

The Cathelco system has proved to be an extremely effective and versatile system for eliminating blockages in seawater pipework caused by bio-fouling.

- Based on the electrolytic principle, providing continuous and reliable protection without the use of chemicals.
- A dual system combining pipework anti-fouling and corrosion suppression.
- A range of control panels and anodes to suit vessels of every size.
- Every system custom designed for its particular application ensuring greater effectiveness.
- Automatic operation – requires minimal attention and makes very little demands on crew time.
- Easy installation – anodes can be installed in seachests or strainers at newbuilding or retrofit.
- Environmentally friendly – does not involve the use of chlorine based chemicals or carcinogens.
- Approved by classification societies.

The system usually consists of pairs of copper and aluminum anodes which are mounted in seachests or strainers and wired to a control panel. In the case of cupro-nickel pipework, a ferrous anode is used instead of the aluminum anode.

In operation, the copper anode produces ions which are carried by the flow of seawater, creating an environment in which barnacles and mussels will not settle or multiply.

By introducing copper ions in very small concentrations, around 2 parts per million, the Cathelco system interrupts the settlement sequence of mussel and barnacle larvae. Instead of adhering to the surface of seachests, strainers and pipework, the larvae pass harmlessly through the cooling water system to the point of discharge.

Without anti-fouling protection, pipes become encrusted with organisms leading to partial or total blockages which reduce the efficiency of the seawater cooling system.

A dual action system

The action of the copper ions is assisted by aluminum hydroxide created by the aluminum anodes which flocculates the released copper from the copper anodes.

This highly gelatinous copper-aluminum hydroxide floc is carried throughout the system and tends to spread out into the slow moving areas closer to the pipe surfaces where marine larvae are most likely to settle.

As a result, marine growth larvae do not settle, instead passing direct to discharge. At the same time, a cupro-aluminum film is built up on the internal surfaces of pipes to suppress corrosion. In this way, the system has a dual action protecting seawater pipework against bio-fouling and corrosion.

Seachest or strainer mounted anodes

When systems are installed at newbuilding, anodes are generally fitted in the seachests using special sleeves or flange mountings. Alternatively, if systems need to be installed prior to scheduled drydocking, the anodes can be mounted in the seawater strainers. This also simplifies replacement when anode renewal becomes necessary.

In special cases, where the Cathelco system supersedes existing chemical based anti-fouling equipment, the anodes can be mounted in treatment (electrolysis) tanks in order to economize on the installation costs by utilizing existing pipework.

- **Steel pipework** – protected by copper and aluminum anodes.
- **Cupro-nickel pipework** – protected by copper and ferrous anodes.
- **Seachest mounted anodes** – generally installed at newbuilding and are replaced at drydocking.
- **Strainer mounted anodes** – can be replaced at any time when the vessel is alongside.
- **Electrolysis tanks** – can be used to replace chemical systems or in specialized applications where seachest or strainer mounting is not possible.
- **Environmentally friendly** – does not use chemicals. Generally operates with copper concentrations of just 2 parts per million.

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