



PLATINISED TITANIUM ANODES



REVISION 1

APPLICATION

- Underwater steel structures - Wharves, jetties, sheet pile walls and piers. Usually rod type anodes distributed throughout the structure to be protected to give a good overall protective current distribution. Anodes should be installed in areas not liable to cause Anode damage i.e. out of the way of berthing vessels, mooring ropes, chains etc.
- Exterior protection of ships hulls - anodes in the shape of plates, discs or strips. Housed in chlorine resistant plastic as the anode operates at high current densities in seawater which produces chlorine.
- Water tank internal protection - usually distributed rod anodes are used for this type of installation by suspending from the tank roof.
- Internal protection of plant - large diameter water pipelines such as cooling water can be protected using rod or wire shaped anodes.



PLATINISED TITANIUM ANODE DATA

Platinised Titanium anodes are manufactured from a commercially pure titanium substrate plated with a very thin coating of platinum. The titanium serves simply as the anode body and the conductor, the active anode element being the platinum coating.

The usual thickness of the platinum coating is approximately 2.5 microns, however, this coating thickness should be increased to 5.0 microns for harsher environments. The base metal is available in a wide variety of standard shapes - rods, tubes, mesh, etc - which can be fabricated into non-metallic mounts for attachment to the structure to be cathodically protected.

The thickness of the platinum coating and the current density at which the anode is operated determine the useful life of the anode. The maximum voltage at the anode to electrolyte interface should not exceed 8 Volts in electrolytes containing chloride as voltages greater than this value could cause local corrosion on any unplatinised portions of the anode.

Platinised titanium anodes should not be used in electrolytes containing fluoride as titanium oxide dissolves in fluoride. Anodic passivation does not protect the titanium substrate in such electrolytes.

The advantage of platinised titanium anodes is that they can be operated at high current densities with very low consumption rates.



PLATINISED TITANIUM ANODES



REVISION 1

CURRENT DENSITY AND CONSUMPTION RATES

Max current density A/dm ²	30
Usual current density A/dm ²	1.0 - 10.0
Consumption rate g/A/yr	0.01 (at current density 5.50A/dm ²)

FEATURES

- Anodes can work at high current densities without decomposition or dissolving.
- Favourable strength to weight ratio.
- Anodes can be smaller and more compact than comparable conventional anodes.
- Can be manufactured in a wide variety of shapes and sizes.
- Lightweight support tube installation for Pt Ti anode installation.

ANODE INSTALLATION EXAMPLES

