



INCORR ENGINEERING & TRADING

* Cathodic Protection Materials Manufacturer/Stockist

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INCORR PLATINISED TITANIUM ANODES

INCORR Pt/Ti anode will work equally well if it is replaced by a platinum anode.

But it is so expensive that we have to substitute the metal with the cheaper titanium and coat it with a thin layer of platinum of a few micron thickness. When Pt/Ti is used as an anode and when it is loaded, a very strongly adhered titanium oxide layer will form on the titanium section. This oxide layer is not conductive, hence, all the current will be discharged from the platinum section. Since platinum has very minimum wear rate, the Pt/Ti anode therefore wear at a very slow rate of 8 mg/Amp-yr.

When an excessive voltage (e.g. > 12 volts) is applied across the titanium anode, the titanium oxide layer will breakdown and the titanium will corrode very fast and cause premature anode failure. The following table shows the corrosion rates of platinum and platinised titanium in various environment:

Conditions	Corrosion rate (mg/Amp-yr)
Pure Pt in seawater 54 to 540 mA/cm ²	6 to 7
Pure Pt in seawater 500 mA/cm ²	13.14
Pure Pt in seawater 130 mA/cm ²	8.76
Pt/Ti in seawater 32 to 320 mA/cm ² (0°C to 15°C DC 100 Hz ripple and above)	8.76 average
As above with high frequency chopped supply	13.8
Pt/Ti in highly acid conditions caused by deposits etc.	up to 100 x normal rate
Indicated by replacement sales in UK of Pt/Ti	8.76 to 17.52

Platinised Titanium anodes can be used in fresh and seawater but care should be taken not to apply excessive voltage.

It may also be applied in soil but the backfill material has to be specially selected and the system to be carefully designed to prevent failure.