

Optima™ Anodes

Titanium Wire Anodes for Cathodic Protection

Product Description

Optima™ titanium wire anodes are ideally suited for cathodic protection applications. The mixed metal oxide catalytic coating is sintered to the titanium substrate, providing a lightweight, durable anode.

With the proprietary catalyst used, Optima™ IOA-HF electrodes, are suitable for use in the widest range of cathodic protection applications including soil, carbonaceous backfill, fresh water, brackish water, and seawater.

The consumption rate of the mixed metal oxide coating is measured in milligrams per ampere-year. This low mass consumption rate combined with the unmatched strength-to-weight ratio for the titanium substrate results in unique advantages for the Optima™ anodes.



Key Benefits

- Lightweight– for example, 100 feet of the TIR16GC-H wire weighs less than 2.5 lbs
- Ductile – can be tied in a knot without damage
- Composite materials eliminate problems with breakage of brittle materials such as graphite and silicon iron
- Dimensional stability eliminates associated problems with connection seals
- Compatible with the widest range of cathodic protection media (water, coke, seawater, brackish water)
- Superior corrosion resistance to graphite and silicon iron

Optima™ Wire Anode Technical Details:

The mixed metal oxide anode is comprised of a commercially pure titanium wire with a mixed metal oxide catalyst sintered to the titanium substrate in a thermal decomposition process. The catalyst is a combination of iridium oxide (IrO_2) and tantalum oxide (Ta_2O_5). When the coating is cured in the oven to convert it to an oxide, some of the titanium from the substrate diffuses into the matrix forming an integral bond between coating and substrate. The process requires control of the temperature profile and the amount of catalyst gained. The catalyst is applied in multiple steps until the desired loading is achieved.

Optima™ Wire Anode Ratings

Wire Dimensions

Diameter: 0.031" (.8mm)
Resistance: 35 ohms/100 ft (35 ohms/30.5m)

Amperage ratings in various media for 20 year life for 100 foot length of wire:

Part Number	Coke	Water	Seawater
TIR11GC-L	4	5	12
TIR11GC-M	8	10	24
TIR11GC-H	12	15	36

Wire Dimensions

Diameter: 0.062" (1.6mm)
Resistance: 8.8 ohms/100 ft (8.8 ohms/30.5m)

Amperage ratings in various media for 20 year life for 100 foot length of wire:

Part Number	Coke	Water	Seawater
TIR12GC-L	8	10	24
TIR12GC-M	16	20	48
TIR12GC-H	24	30	72

Wire Dimensions

Diameter: 0.125" (3.2mm)
Resistance: 2.2 ohms/100 ft (2.2 ohms/30.5m)

Amperage ratings in various media for 20 year life for 100 foot length of wire:

Part Number	Coke	Water	Seawater
TIR16GC-L	8	10	24
TIR16GC-M	16	20	48
TIR16GC-H	24	30	72

Quality Assurance

- ASTM D3359 – measuring adhesion by tape test
- ASTM B338 Titanium – material certificates available
- Coating loading measurement – XRF and weight gain

Material Availability

Siemens Water Technologies can meet your requirements by stocking material to your specifications and shipping it on an as needed basis.

Custom Orders

Please contact us if you have special requirements. Tube lengths, diameters, current requirements and even special catalytic coatings can be accommodated, including platinum.

Siemens
Water Technologies
2 Milltown Court
Union, NJ 07083
Tel: 908.851.2277

optima.water@siemens.com

© 2009 Siemens Water Technologies Corp.
EC-ELTITA-DS-0309
Subject to change without prior notice.

Optima is a trademark of Siemens, its subsidiaries or affiliates. ASTM is a trademark of the American Society for Testing and Materials.

The information provided in this literature contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.