

BACKGROUND

TECNOLOGÍA TOTAL produces canister-type MMO anodes under a strict quality control process that not only involves design and manufacturing but the selection of raw materials from recognized foreign suppliers.

MANUFACTURING

Our typical canister anode is manufactured in 3x60", de 3x80", 6x60 and 8x65" dimensions for heavy duty work, these dimensions follow the North American standard. Impressed current canister anodes are manufactured using 3" galvanized tubing, which features an outside diameter of 3.5" (8.90 cm), 6.625" or 8" (20.32cm).

These anodes are prepackaged with calcined petroleum backfill to provide long-term performance. The coke used in its manufacturing has the following chemical composition:

ELEMENT	CONTENT
Carbon	99.77 % min.
Ash	0.1
Moisture	0.0
Volatile material	0.0


CABLE

The anodes are made with HMWPE #8, 3 meters cable, if requested, they can include HALAR #8 Cable. Other dimensions are available with special requests.

RIBBON MANUFACTURING

The chemical composition of the MMO ribbon is as follows:

ASTM B265 GRADE I							
C%	Fe%	N%	O%	H%	Other (Single)	Other (Total)	Ti
0.08 max	0.20 max	0.03 max	0.18 max	0.015 max	0.10 max	0.40 max	Balance


REFERENCE	DESCRIPTION
MMO Ribbon	
Substrate	ASTM B265 Grade I Titanium
Coating	IrO ₂ /Ta ₂ O ₅
Coating method	Multi step thermal decomposition of precious metals by the salt technique.
Width (Nom)	0.25" (6.35 mm)
Thickness (Nom)	0.025" (0.635 mm)

The shelf life of these manufactured anodes is indefinite, since there are no reactions that disable their use after long storage, the only condition is that the cable must not be exposed to direct sunlight.

MMO TUBULAR ANODE MANUFACTURING

The chemical composition of the MMO tubular anode used in the manufacturing is as follows:

ASTM B265 GRADE I							
C%	Fe%	N%	O%	H%	Other (Single)	Other (Total)	Ti
0.08 max	0.20 max	0.03 max	0.18 max	0.015 max	0.10 max	0.40 max	Balance

REFERENCIA	DESCRIPTION
Anodo Tubular MMO	
Substrato	ASTM B265 Grade I Titanium
Recubrimiento	IrO ₂ /Ta ₂ O ₅
Método de Revestimiento.	Multi step thermal decomposition of precious metals by the salt technique.
Diámetro (Nom)	1" (25.4 mm)
Longitud (Nom)	45/60" (1143/1524 mm)

The shelf life of these manufactured anodes is indefinite, since there are no reactions that disable their use after long storage, the only condition is that the cable must not be exposed to direct sunlight.

INSTALLATION

Since these anodes are prepackaged, they do not require additional coke to function properly and are installed in a hole either horizontally or vertically following the design directions.

Once installed, wetting around the anodes is suggested to allow better anode contact with the surrounding soil.

Special care must be taken in the installation of the anode, avoid the manipulation of the anodes by the cable to avoid damages between the cable connection and the internal MMO anode.



ANODE LIFE TIME

Life time (Years)	Amperes 3"x60"	Amperes 3"x80"	Amperes* 6"x60"	Amperes** 8"x65"
15	1.00 A	2.70 A	10.8 A	14.63 A
20	0.80 A	1.92 A	8.10 A	11.70 A
25	0.68 A	1.63 A	6.75 A	10.24 A
30	0.56 A	1.34 A	5.40 A	8.78 A
40	0.45 A	1.08 A	4.05 A	5.85 A
50	0.36 A	0.86 A	3.24 A	2.93 A

* 6"x60" Anode with soul of tubular anode of 1x45".

** 8"x65" Anode with soul of tubular anode of 1x60".

NOTE

To increase the life time of the anodic system, it is recommended to use a higher number of anodes to decrease the current discharge by each anode and obtain a longer life time.

Any concerns regarding our anodes, please communicate via website.

WARRANTY AND LIMITATION OF LIABILITY

TECNOLOGIA TOTAL will not be in any case responsible for damages of any nature that could be derived from an inadequate use of the product. Before using the product, the user must determine if the product is suitable for its intended use, taking all risks and liability that could be derived from its use.

If it's proved that a product is faulty due to manufacturing or its material at the time of sale, or that it does not fulfill during its warranty period the indicated properties in this technical sheet, the only responsibility of TECNOLOGIA TOTAL will consist of replacing the buyer with the quantity of product that is found to be defective. TECNOLOGIA TOTAL does not take any responsibility for any additional cost such as manufacturing cost, withdrawal or re-application of the products. If TECNOLOGIA TOTAL offers a warranty to their clients, express or implicit, or a compensation that differs from the established in this section, this stipulation can not be altered unless a signed agreement by the parties.

