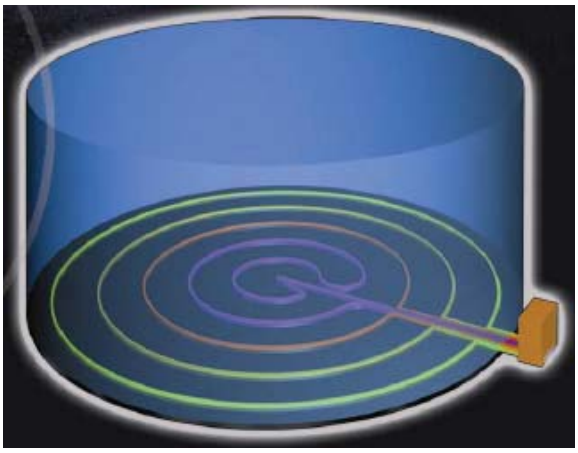
CerAnode™ Technologies International

Division of APS-Materials, Inc. ----------

CerAnode PiggyBack™ MMO Linear Anode Technology

MMO Wire Anode is Packaged with Loresco® SC-3 Carbon Backfill in a Porous Sock



Functions Efficiently in Arid Soils or Immersed in Water

- **Continuous Anode Technology**
- **Follows Structure Symmetry**
- **Optimized Current Distribution**
- **Optimized Power Efficiency**
- **Optimized Low Groundbed Resistance**
- **Easy to Install -- Cost Effective**
- **Packaged with Loresco® SC-3 Coke**
- **Customized Anode Rating-Design Life**
- **ISO Registered Quality System**
- **Arrives Onsite Ready to Lay in Place**

PiggyBack™ MMO Anode Technology

CerAnode™ developed MMO linear anode technology and assigned the trademark PiggyBack™ in 1992. The technology is used around the world for applications including tank bottoms, underground vessels, bullet tanks and pipelines. The first PiggyBack™ installation was in 1993. Since that time continuous close-proximity anode-to-cathode applications have become a common design approach. In many applications this technology has significant advantages compared to traditional discrete anode arrangements. The technology provides optimized current distribution, optimized polarization characteristics, optimized groundbed resistance, optimized interference mitigation and better than ever power efficiencies. The materials employed are GREEN in that they are environmentally safe, being inert, benign or biodegradable. The anode's sock decomposes leaving a conductive horizontal column at the position where it was buried allowing protection currents to pass freely to the structure. The MMO anode core is firmly positioned to protect the structure for many decades.

www.CerAnode.com – ceranode@apsmaterials.com
Dayton, Ohio USA – 937 278 6547 (fax 4352)

CerAnode™ Technologies International

Division of APS-Materials, Inc. ----------

PiggyBack™ Linear PBL™ MMO Anode
Standard Product Characteristics

The Standard PiggyBack™ Linear provides flexibility to the design engineer. Standard product specification is listed below but since CerAnode manufactures the key components of the PiggyBack™, the product specification can easily be customized. Parameters such as design life, current rating, wire diameter, cable size and insulation type can be specified and manufactured quickly.

Consult CerAnode for other cable sizes and Insulation types	
Model PBL-15-100/20-CS	
Coke Sock Anode Diameter	**1.5 inches (38 mm)**
MMO (mixed metal oxide) Anode Wire Coating Type	**Ir-Ta**
MMO Anode Substrate Material is Titanium CP G1	**ASTM B348**
MMO Dimensionally Stable Anode Rating for 20 years	**100 mA/ft (328 mA/m)**
Anode -to-Coke and Coke-to-Earth Current Density Interface	**Excellent**
MMO Anode Test Method for Anode Life	**XRF & AEC**
MMO Anode-to-Header Cable Connection Resistance	**≤ 0.0009 Ω**
MMO Anode-to-Header Cable Connection Environmental Seal	**MultiSeal™**
Internal Header Cable Cross Section	**6 AWG or as specified**
Internal Header Cable Insulation	**HMWPE or as specified**
Length and size of Tail at Each End	**As specified**
Coke Sock Environmental Rating – Green	**Biodegradable**
Braiding over Sock Material	**Included**
Coke Specification	**Loresco® SC-3**
Product Weight	**1.13 lb/ft (0.15 kg/m)**
Anode Length per Spool	**1640 ft (500 m)**
Gross Weight per Spool	**2200 lbs (1000 kg)**
CerAnode is a manufacturer of MMO anodes since 1984 and can supply internal anode sizes as required.	

General Design Considerations

As with all linear type anodes, there are attenuation and other important design factors to be considered such as soil resistivity, anode length, connection spacing, power feed points, auxiliary header cable, cable insulation, additional coke, alternate anode ratings. Consult CerAnode for Customized Options. We manufacture the MMO and assembly.

Accessories	**Part Number**
End Cap Splice Kit	SK-E-150
In Line Splice Kit	SK-I-150

ISO 9001:2008 Registration