Zinc Anode Grounding Cell

Zinc anodes have been used since the 19th century to protect steel structures from corrosion. Today, these anodes are still widely utilized and have proven to be an effective choice for preventing corrosion in select soils and brackish waters. MESA offers standard zinc anodes made to ASTM B-418, Type II standard alloy. These anodes generate an open circuit potential of -1.10 volts (with respect to a Cu/CuSo4 reference). Made from 99.99% pure high-grade zinc, MESA zinc anodes offer a 90% current efficiency and deliver a current capacity of 335 amp-hours/pound. This purity composition assures the anodes are more resistant to pacifying films.

The preferred zinc anode for underground cathodic protection use conforms to ASTM-B-418-95a, Type II. For protecting metallic structures in saline mud or exposed to sea or brackish water, the high amp zinc material should be considered. This alloy meets the compositional requirements of Mil-A-1800-1-J and ASTM B-418-95a, Type I.

Standard Fabrication

MESA zinc anodes are packaged in a cloth bag and centered in a low resistance backfill mixture. The standard backfill mixture consists of 75% hydrated gypsum, 20% bentonite, and 5% sodium sulfate. A 10' coiled lead of #12 W solid copper wire is silver soldered to the anode core. The connection is then coated with two layers of insulating and plastic electrical tape.

Typical Applications

Zinc anodes are recommended for use in soils with resistivity's below 1000 ohm-cm. Because these anodes have a driving voltage less than magnesium, they are most effective on well coated steel structures requiring minimal current output. Packaged anodes are commonly used as grounding cells on electrical equipment and across insulators on pipelines to limit high voltages. Typical grounding applications include pipeline, power stations, storage tanks, and transmission line towers and cables. Zinc anodes should not be used in extremely alkaline (above 9.2 pH), acidic (below 5 pH), or high temperature (above 140°F) electrolytes.

Features

- Two Zinc Type II anodes separated with 1" insulating spacers
- 10' of #6 HMWPE cathodic protection cable crimped securely to each anode
- Both anodes centered in one cloth bag and surrounded with low resistance backfill

Element	Content %	
	MIL-A-18001 ASTM-B-418 Type I	ASTM B-418 Type II
Al	0.1 - 0.5%	0.005% max
Cd	0.02- 0.07%	0.003% max
Fe	0.005% max	0.0014% max
Pb	0.006% max	0.003% max
Cu	0.005% max	0.002% max
Zinc	Remainder	Remainder

Anode Type	Bare Weight	Width	Height	Length	Total Packaged Weight
S5	5#	1.4	1.4	10	20
S12	12#	1.4	1.4	24	40
S15	15#	1.4	1.4	30	50
S15A	15#	2	2	15	36
S18	18#	1.4	1.4	36	55
S30	30#	1.4	1.4	60	86
S30A	30#	2	2	30	67
S45	45#	2	2	45	100
S60	60#	2	2	60	120