



**BHAGYANAGAR
MAGNESIUM**

A Unit of Bhagyanagar India Limited of Surana Group

India's First Indigenously Developed Sacrificial Anode

Specially designed for Electric water heaters, Solar water heaters,
Heat Pump and Water storage tanks

**Maximum protection
with longer life ensured through**

- Minimum impurities
- High quality production standards
- Controlled heat treatment methods to achieve fine grain structure

**AZ63
AZ31B
AZ31D**

MAG'node TM

HIGH POTENTIAL MAGNESIUM ANODES



MAKE IN INDIA



आत्मनिर्भर भारत

MAG'nodeTM

HIGH POTENTIAL MAGNESIUM ANODES

Inspires Confidence

About Us

Bhagyanagar Magnesium Pvt Ltd is a unit of Bhagyanagar India Ltd., of the Surana Group.

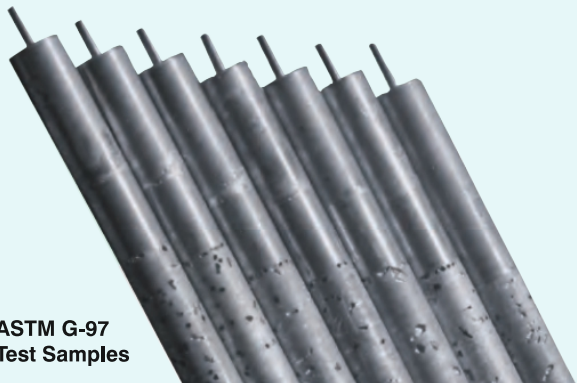
The Surana Group is a US \$300 Million Business Leader in the Copper Industry with state of the art manufacturing facility spread over 70 acers in Hyderabad City limits, processing over 40000 metric tons of copper per annum. The Group is also into Telecom, Solar and Real Estate Industries.

Assured Quality

The high quality production standards assure you of maximum protection of your heater tank with long life of the Anode needing fewer replacements. With Our expertise in Magnesium processing, Mag'node Magnesium anodes are manufactured to perform at peak efficiency and deliver the required potential to effectively protect your metal structure from the perils of corrosion. The high quality material and production process ensures longer life.

Mag'node Anodes meet or exceed the ASTM B 843 standard. Our superior standard potential anodes also meet or exceed ASTM B843 grade (AZ31B, AZ63C and AZ63D) H-1B and H-1C alloys, respectively.

ASTM G-97
Test Samples



Our Mission

India imports almost all of the Magnesium Anodes for its domestic consumption. MAG'node is an indigenously developed Magnesium sacrificial anode taking inspiration from "MAKE IN INDIA - MAKE FOR THE WORLD", initiative in an endeavor of not just making India self reliant, but also became a reliable exporter.

Under the Vision and Guidance of our MD Sri. Devendar Surana, Bhagyanagar Magnesium Pvt. Ltd., has developed India's own sacrificial Anode alloy AZ63.

We have a full fledged Magnesium foundry where we compose our own Magnesium alloys including AZ63, AZ31B, AZ31D and cast it into different sizes and shapes, as required by our Customers.

Technical Details

AZ63 is the most common Magnesium alloy used in Cathodic Protection.

Despite offering a higher potential voltage of -1.52 to -1.70, AZ63 alloy has a lower chemical corrosion rate (0.476gm/cm/yr) and highest anodic efficiency (56+/- 1.48). The corrosion of AZ63 is uniform, thus offering efficient service life.

Other Magesium alloys that are used for anodes are AZ31B and AZ31D. All the three Magnesium alloys are manufactured in our own facility.

Quality assurance testing includes the ASTM G-97(Laboratory methods of testing Current Efficiency in Magnesium Anodes)

Note: Low Cu & Fe composition customization available



MAG'nodeTM

ASTM B 843

TABLE 1 Chemical Requirements^A

Element	Grade					
	AZ63B ^B	AZ63C ^B	AZ63D ^B	M1C	AZ31B	AZ31D
	M11632	M11634	M11636	M15102	M11311	M11313
	UNS					
Aluminum	5.3-6.7	5.3-6.7	5.0-7.0	0.01	2.5-3.5	2.5-3.5
Zinc	2.5-3.5	2.5-3.5	2.0-4.0	...	0.6-1.4	0.6-1.4
Manganese	0.15-0.7	0.15-0.7	0.15-0.7	0.15-1.3	0.20-1.0	0.20-1.0
Silicon	0.10	0.30	0.30	0.05	0.10	0.05
Copper	0.02	0.05	0.10	0.02	0.05	0.04
Nickel	0.002	0.003	0.003	0.001	0.005	0.0010
Iron	0.003	0.003	0.003	0.03	0.005	0.002
Calcium	-	-	-	-	0.04	0.04-
Other metallic impurities each				0.05	—	0.01
Others, total	0.30	0.30	0.30	0.30	0.30	0.30
Magnesium	remainder	remainder	remainder	remainder	remainder	remainder

^ALimits are given as maximum weight percent unless shown as a range.

^BAlloys AZ63B, AZ63C, and AZ63D are commonly known as H1A, H1B, and H1C, respectively

Chemical Compositions of Magnesium Anodes.