

NMR-Indium free Aluminium Sacrificial Anode (NMR-IFASA)

Introduction

Steel structures in immersed condition undergo corrosion due to environmental attack. The protection of metals from corrosion has become a very important issue from structural integrity and economic point of view. Organic coatings along with cathodic protection are widely used for corrosion protection of metallic materials in immersed condition. In cathodic protection the steel structure is made cathode with respect to external anode. Conventionally cathodic protection is provided with galvanic / sacrificial anodes. In galvanic cathodic protection system, the anode material dissolves and provides the necessary current for protection of immersed structure. Al alloys having activating element are already used as sacrificial anode for cathodic protection of structural steels and marine grade Al alloys. However, most of the activating elements such as Hg, Sn, In etc., are hazardous in nature and are either banned or will be banned. Thus there is a need to develop Aluminium alloy sacrificial anodes with environmental friendly metals and having working potential sufficient enough to offer protection against corrosion of structural steel as well as Al alloys in seawater medium.

Technology developed at NMRL and its advantage.

The present invention relates to the development of sacrificial anodes with high negative potential and is particularly useful for cathodic protection of structural steels and marine grade Al alloys in marine environment. In order to have desired working potential with protection criteria, the present invention provides aluminium sacrificial anodes comprising zinc, magnesium, zirconium and silicon so as to provide efficient and long cathode protection to structural steel and marine grade Aluminium alloys.



**NMR-Indium free Aluminium
Sacrificial Anode**

Salient Features

Aluminium alloy anode

The Indium free aluminium alloy anode has the following features:

- i. Open circuit potential : -950 to -1050 m V vs SCE
- ii. Closed circuit potential : -900 to -950 m V vs SCE
- iii. Current capacity : min 2400 Ahr/Kg

The anodes are available in different shape and size, so that anodes can be selected as per requirement of the user. Also the anodes are designed to give maximum current output.

Application Areas

- Cathodic protection of ship underwater hull and other floating and submerged structures.