

Surface Protection of Copper based Alloys using Plasma based Coating Technology

Brief description:

To prevent rusting of copper based alloys, like bell metal and brass, a technology has been developed and patented using plasma based process. (Ref: Indian Patent No.268130 /2015)

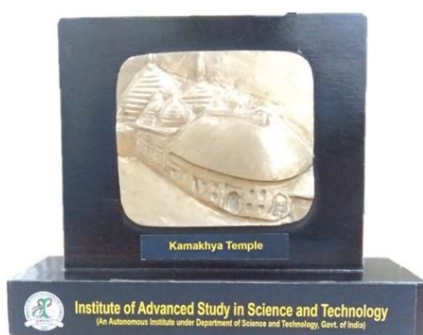
Details about the technology:

This process involves radiofrequency plasma based thin film deposition using an organic vapour. It is a process for yielding highly adherent, branched and cross-linked polymer/glass-like films which exhibit high optical transparency, hydrophobicity, mechanical, thermal and chemical stabilities, suitable for application in surface corrosion protection of copper alloys. The deposition process utilizes RF power with the copper alloys as the cathode and is conducted at ambient temperature. This invention provides an efficient solution to the surface protection of copper alloys and also to improve the export quality of different kinds of decorative items made up of copper alloys.

Prototype commercial items made up of Brass/Bell Metal, e.g. Kamakhya plaque, Rhino plaque, door handles, bathroom fittings, alphabets, police badges, Sindoor container and puja items have been developed with protective coating by plasma technology and ready for display.



Rhino plaque, 3 inches × 2 inches (Bell metal)



Kamakhya plaque, 3 inches × 3 inches (Bell metal)



Kamakhya plaque, 7 inches (Brass)

What problem it solves/applicability of the technology:

It solves the problem of corrosion of the surface of copper alloy items on ageing.

Patent status:

Title of Patent: *A process for depositing hard, hydrophobic, mechanically, thermally and chemically stable polymer films on bell metal.*

Patent Assignee: IASST, Guwahati and DAE, Govt. of India

Current Status: Patent active, Patent No.268130, Indian patent granted (2015)

Contact details of the concerned scientist for further information:

Prof. Arup Ratan Pal
Institute of Advanced Study in Science and Technology
Paschim Boragaon, Guwahati, Assam 781035, India
Ph. No.: +91-361-2270095, Ext-119.
E-mail: arpal[at]iasst[dot]gov[dot]in