



**UNIVERSITY TECHNOLOGY MARA**

**SACRIFICIAL ANODE CATHODIC PROTECTION OF BURIED PIPES**

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## ABSTRACT

Corrosion is the destructive result of chemical reaction between a metal or metal alloy and its environment. Corrosion science is the study of the chemical and metallurgical processes that occur during corrosion. Corrosion engineering is the design and application of methods to prevent corrosion. So, science should be together with engineering so that to invent new and better methods of prevention and apply methods of prevention and apply existing methods more intelligently and effectively.

In this project, I have three phases. The main objective for the first of this project is to study the rate of corrosion for the buried pipe by Sacrificial anode in different environment. Four specimens buried pipes (4 inch of diameter and 50cm length) prepared in different situations and one of the pipes used SACP for 5 months. For the second phase, to study the rate of corrosion for the buried pipe by using the new anode materials of different Mg and Zn composition. In this experiment, we conducted tests on 5 specimens (buried pipes 1 inch diameter and 9 inch length). All specimens were buried in the soil kept in separate glass tanks (size: 1x1x1 foot) for 3 weeks. The buried pipes protected by anode that has different in Zn composition. The last experiment in this project is to prepare PMMA based magnesium conducting polymer as anode material in SACP.

The important gain of this project is to understand the integration of Cathodic Protection especially about Sacrificial Anode Cathodic Protection method. Also, the exposure to the procedure in developing for the new anode material in SACP which can reduce cost of prevention and expected to be an effective method.

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