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STUDY ON DETERIORATION OF MILD STEEL AND CONCRETE IN PRESENCE OF INDUSTRIAL WASTE WATER AND ITS CONTROL

BY

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DECLARATION

I here by declare that the work reported in this thesis is my own unless specified and duly acknowledged by quotation.

14th January 1998 Satyagalam Varadaraj

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ABSTRACT

Deterioration of materials in presence of waste water is a major concern in effluent treatment plants. In view of highly variable characteristics and composition of waste water, a proper understanding of the effects of various parameters and conditions responsible for material deterioration and subsequent failure is essential to enhance the useful life of plant and machinery. Exposure of metallic and concrete surfaces to the environmental factors in the waste water generally leads its deterioration under hostile conditions. Effect of the ambient conditions as also the local conditions may have adverse impact on materials causing their deterioration. High temperature, low pH, presence of toxic and heavy metals, presence of fats (oil and grease), high BOD/COD, suspended solids and other factors can be detrimental to the materials. Depending on the source of effluent generation, waste water is bound to have one or more of these factors, which can cause material deterioration or Corrosion. Domestic waste water characteristics are reasonably standard and well understood, but the industrial waste water is of many types and depends on source of effluent generation. However, for the present study, three local industries have been chosen from the agro sector to study the effect of waste water on mild steel and concrete and an attempt has been made to develop a cost effective protective coating to control the deterioration of materials caused by pollutants.

CONTENTS