Preparation and Evaluation of Some Compounds Used as Hydrogen Sulphide Scavengers in Petroleum Industry

BY

Maamoun Mohamed Tawfik Khattab
B.Sc. Science (Chemistry and Zoology),
Zagazig University
1979

A Thesis Submitted in Partial Fulfillment
of
The Requirement Master Degree
in
Environmental Science

Department of Environmental Basic Science
Institute of Environmental Studies and Research
Ain Shams University

2012

APPROVAL SHEET

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DEDICATION

All My Family

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*All praise is to **Allah** (**Al-Mighty**), the Beneficent, the Merciful, without whose mercy and guidance this work would never have been started nor completed. I praise Him (**Al-Mighty**) as much as the heavens and earth and what are in between or behind.*

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ABSTRACT

H_2S gas has bad effect on the personnel health working in the production field and can lead to death.

Also, H_2S has serious effect on the production facilities ranged from normal corrosion to sulphide stress cracking "SSC" which is considered a disaster for equipments, personnel, environment and profit.

Sulphide stress cracking destroy the facilities, delay the production and the leak of H_2S through the crack can lead to serious environmental problems such as fires and acid rain problems which are harmful to the plant and consequently both animal and personnel.

This study was conducted to evaluate some amine compounds which are safer to health and environment as H_2S scavenger and compare their efficiency with commercial H_2S scavenger that already have been applied in the oil fields.

Three compounds MF1, MF2 and MF3 have been formulated and evaluated as H_2S scavengers at different dosages and different temperatures. The best compound MF3 was re-evaluated against commercial scavenger of EPRI 710 and 730 that are widely distributed for petroleum companies in Egypt.

The study revealed that the prepared compound MF3 is strongly competitor for commercial compound as H_2S scavenger.

The surface activity of the prepared compounds was evaluated, also the results of evaluation of the corrosion inhibition efficiency of the prepared compounds against the commercial products MF3 showed that these compounds are strongly competitor as corrosion inhibitor.

LIST OF TABLES	Page