

PREPARATION OF ENVIROMENTAL FRIENDLY
COATINGBASED ON HENNA FOR THE PROTECTION OF
ALUMINIUM IN SEAWATER

ABDUL SYAHIR BIN YUSUF

bpd
LP
2
FMSM
1
2013

TY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

2013

**PREPARATION OF ENVIROMENTAL FRIENDLY COATING BASED ON
HENNA FOR THE PROTECTION OF ALUMINIUM IN SEAWATER**

By

ABDUL SYAHIR BIN YUSUF

**Research Report submitted in partial fulfilment of
the requirement for the degree of
Bachelor of Applied Science (Maritime Technology)**

**Department of Maritime Technology
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU**

2012



**DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND SCIENCE MARINE
UNIVERSITY MALAYSIA TERENGGANU**

DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that the research report entitled:

Preparation Environmental Friendly Coating of Inhibitor Based on Henna for The Protection of Aluminium In Seawater by Abdul Syahir bin Yusuf, Matric Number UK20665 has been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment toward obtain the Degree of Bachelor Applied Science (Maritime Technology), Faculty of Maritime Studies and Science Marine, Universiti Malaysia Terengganu.

Verified by:

PROF. DR. WAN MOHD NORSANI WAN NIK
DEAN
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU.

Principal Supervisor

Name: Prof. Dr. Wan Mohd Norsani Wan Nik

Date: 13.1.13

Head of Department of Maritime Technology


Name: Prof Madya Dr. Mohamad Fadhli bin Ahmad

Date: 13.1.13

ASSOC. PROF. DR. MOHAMMAD FADHLI AHMAD
HEAD
DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

DECLARATION

I hereby declare that this thesis entitled **PREPARATION OF ENVIRONMENTAL FRIENDLY COATING BASED ON HENNA FOR THE PROTECTION OF ALUMINIUM IN SEAWATER** is the result of my own research except as cited in the references.

Signature : 

Name : Abdul Syahir Bin Yusuf

Matric No. : UK20665

Date : *13 Januari 2013*

ACKNOWLEDGEMENTS

Foremost, I would like to express my sincere gratitude to my advisor Prof Dr. Wan Norsani bin Wan Nik for the continuous support of this study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis.

A lot of appreciate to Mr. Fakhratul Ridwan Zulkifli that guided me from the beginning of my thesis. The suggestions given really help me and my thesis works smoothly. The information and experience while conducting his final year project was shared with me and improves me better. He helps me a lot by explained the steps of the procedures during handling my thesis.

Not to forget also, I would like to thank my friends especially Muhammad Dhiyaulrahman, Nor Fazreen and Nurfarahin that help me a lot accompany me for laboratory measurement. Thanks also to my friends that conducting the same corrosion experiment and shared the knowledge together. New enjoyable experience was shared together while monitoring this laboratory measurement. Last but not least, my beloved family is really supportive and understanding that always motivates me to finish my thesis. They always be my side and pray for my successful.

PREPARATION OF ENVIROMENTAL FRIENDLY COATING BASED ON HENNA FOR THE PROTECTION OF ALUMINIUM IN SEAWATER

ABSTRACT

Aluminium alloy is known for its exceptional performance in flexible environment. Based on maritime industry, corrosion was occur and depending in various environment. As a solution, natural coating is been used to overcome this problem. The inhibition of the corrosion on aluminium by henna extract in seawater using salt spray was been studied by using coating technique. This studied used plant extract which is henna (*Lawsoniainermis*). Aluminium plates were coated by henna in different solvent and placed in salt spray for 30 days. The solvents were used as pigment to create new paint or formulation before coating samples. The scope of study only focuses for certain material which is aluminium alloy and henna extract. The characterization of the corrosion was tested using Fourier transform infrared spectroscopy (FTIR), weight loss method, potentiodynamic polarization (PP), electrochemical impedance spectroscopy (EIS) and scanning electron microscope (SEM).