FINAL YEAR PROJECT REPORT

ADVANCED DIPLOMA IN MECHANICAL ENGINEERING

SCHOOL OF ENGINEERING, I.T.M, SHAH ALAM

DEVELOPMENT OF SUITABLE MOULD AND CORE REFRACTORY COATING FOR FOUNDRY APPLICATIONS FROM LOCALLY AVAILABLE RAW MATERIALS.

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MAY 1988

PREFACE

Mould coatings have significance influence on the quality of the casting and therefore to foundries as well. Rough casting surfaces due to rough mould surfaces will require excessive machining work in order to produce a fine surface finished. This will result in the increasing of the cost of production of the components due to :

i) Higher tooling cost.
ii) Higher percentage of rejected parts.
iii) Accuracy and tolerances are reduced.
iv) Higher machining and setting time.

The mould coatings already in use are imported either in form of a dry material or ready made mixtures and the material are costly since the order must be in bulk (subjected to minimum order quantities).

This project is aimed at the developing of an acceptable refractory mould coating using locally material to substitute the imported mould coating materials either totally or partly. With the downward trend of the foundry industry in the recent times the importing and distributing of coating materials has come vertually to a stand still. As a result, the foundries find it extremely difficult to import on their own the

ACKNOWLEDGEMENT

The students wish to express their sincere appreciation and thanks to the Project Advisor, Mr. D.D.H Peiris for his concerned, helpful and fruitful advices to make this project achieved its purpose and reality.

The students also would like to thank to the persons and departments which provided valuable assistances and cooperation in order to make this project success.

i) En. Ridzuan Husin, Technical Assistant, Engineering Workshop, I.T.M.
ii) En. Azmi, Foundry Section, I.T.M.
iii) En. Hayub, Material Science Laboratory, I.T.M.
iv) Anshin Casting Ind. Sdn. Bhd., Shah Alam, Selangor
v) Goodyear Malaysia Bhd., Shah Alam, Selangor.
vi) EN. Kamal Daril, Jabatan Kajibumi Malaysia, Kuala Lumpur.
vii) En. Zulkifli, I.T.I., Jalan Kuchai Lama, K. Lumpur.
viii) School of Art and Design, I.T.M., Shah Alam.
ix) United Clay Product Sdn. Bhd., Kuala Lumpur.
x) SIRIM, Shah Alam, Selangor.

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1.0 INTRODUCTION

1.1 General

The objective of this project is to develope a suitable mould and core refractory coating from locally available raw materials. The mould coating developed should demonstrate properties very close to the established mould and core coatings. Advantages of mould and core coatings are

i) Coating provide better surface finish.

ii) Dimensional accuracy and tolerances are considerably high.

iii) Reduction in machining cost.

iv) Enhance the life of tools.

v) Accurate contour on casting surface.

vi) Separate the metal and mould surface, easy removal of casting from mould after solidification and cooling.

vii) Prevent excessive burning loss of silica sand and additive in the moulding sand.

viii) Control the reaction between moulding materials and metal especially in view of gas absorbtion.

ix) Eliminate most of moulding sand dependent casting defects.