STUDY OF BONDING STRENGTH OF INORGANIC FILLERS BASED INTUMESCENT COATING

by

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Engineering (Hons)
(Mechanical Engineering)

JANUARY 2012

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Mechanical Engineering Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirement for the
BACHELOR OF ENGINEERING (Hons)
(MECHANICAL ENGINEERING)

Approved by,

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January 2012

CERTIFICATION OF ORIGINALLY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the reference and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified source or persons

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MUHAMMAD SYAHMI HAMIZOL

ABSTRACT

Intumescent coating is an insulating system designed to decrease heat transfer from fire to substrate structure to maintain its integrity. Zinc phosphate will be used as primer coating on steel coupons to increase adhesive of cooling and protect corrosion from occurs. The coating was based mainly are carbon source, acid source, blowing agent, binder and hardener. The main intumescent coating will be tested at high temperature for certain period and it is found very stable and well bound with the steel substrate. However, in this experiment work some additive which is, an inorganic filler will be added into the main formula as reinforcement for the coating. Different formulations with additive will be developed to study the bonding strength of coating with steel substrate. Fire test and shear test will be conduct to achieve the objective of this experimental work. Scanning Electron Microscope will be used to study microstructure and bonding mechanism of coating with the substrate before and after fire test. The results are expected to show whether the additive gives a better bonding with substrate or not.

ACKNOWLEDGEMENT

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Assoc. Prof Dr Faiz Ahmad for his guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my gratitude towards my parents which are Mr. Hamizol Ngah and Mrs Hasnah Abdul Majid for their kind co-operation and encouragement which help me in completion of this project.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

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