FLUIDIZED BED APPLICATION FOR COMPONENT CLEANING

MOHD FAUZI BIN HASSIM
(2000339046)

A thesis submitted in partial fulfillment of the requirement for the awards of
Bachelor Engineering (Hons) (Mechanical)
Faculty of Mechanical Engineering
Universiti Teknologi MARA (UiTM)

NOVEMBER 2005

ACKNOWLEDGEMENT

In the name of Allah S.W.T, the Most Gracious who has given me the strength and ability to complete this project and report. All perfect prices belong to Allah S.W.T Lord of the Universe. May his blessing belong upon the prophet Muhammad S.A.W and members of his family and companions.

I would like to take this opportunity to express our appreciation especially to my dear project advisor Mr. Wan Ahmad Najmi bin Wan Mohamed for his guidance, ideas, support and patient while the making of this project. He is helpful and always pleasure to share ideas in solving any problem. Thanks a lot for his tolerance and support in make this assignment made and successful.

Beside that I also like to thank other persons that have helping me to make this project accomplished successful. Especially the all the technicians Mr. Fadzly, Mr. Johari, Mr. Adam, Mr. Farid and many more. Not forget my friends which were very supportive and cooperative in making this project eased and succeed. Thank you.

ABSTRACT

Cleaning process of metal parts becomes an imperative process in the industry and our daily life. For the example, the cleanliness of the machinery component is important to increase it efficiency instead to avoid it from breakdown. The lubricant used to the machine would transfer as the machine was operating. Additionally, the dust and soil from the environment made it worse.

The conventional method of cleaning the metal parts are harmful to the operator and the environment else well. This is because the conventional cleaning process will used the chemical solvent. Therefore, the cleaning metal parts using the principle of fluidized bed is introduced that has been used for the combustion and heat treatment. This cleaning method is new technology and still in the development.

This project involved a research about the basic fluidized bed principle and this information then used and innovated for cleaning purpose. Moreover, this project needed a fabrication of a fluidized bed lab scale reactor that is functioned to determine the characteristic of this phenomenon. After that it would be used to cleaning small metal parts. The lab scale reactor would be the model for further study of this cleaning method and to make a larger cleaning reactor.

Consequently, this project have achieved several of it objectives in determination of bed behavior of the particle with out heat supplied and the distribution of temperature with out any load. These information are important for a further research using this unit. The result and the discussion of this principle and the fluidized bed scale lab reactor can be gained from this report.

TABLE OF CONTENTS