



**ON A STUDY OF POLYMERIC-FOAM PADDING AS A POTENTIAL
VIBRATION ABSORPTION FOR USES IN HOUSEHOLD APPLIANCE**

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ABSTRACT

This project is about the study of dynamic responses of polymeric foam when it is subjected to a base motion. There are two types of foam used in this study, namely, polystyrene and polyvinyl chloride. Apart from that, this project also proposes to see the effects of foam padding with variation in layers. The household appliance that has been used in this study is a blender. Literature review and theoretical review of vibration is described first followed by the equipment specifications and handling that involved in calibrating of equipment and handling of analyzer including a brief explanation on MATLAB Software. The methodology and analysis of results are put forward. A justification on the selection of this project, which covers the selection of material (Polystyrene and Polyvinyl Chloride, PVC), fixture design and equipment setting was carried out. The analysis of results was based on the data collected from the experiment. Finally, a conclusion and recommendations on the results obtained were made.

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CHAPTER I

LITERATURE REVIEW

1.1 Introduction of Vibration

There are numerous sources of vibration in an industrial environment, household appliances, laboratory, etc. These sources of vibration can be seen in impact processes such as pile driving and blasting, rotating or reciprocating machinery such as engines, compressor and motor, transportation vehicles such as aircraft and trains, household appliances such as washing machine, blender and many others.

The presence of vibration often leads to undesirable effects such as structural or mechanical failure, sequence and costly maintenance of machine, and human discomfort. Vibration can sometimes be eliminated on the basis of theoretical analysis. However, the manufacturing costs involved in eliminating the vibration may be too high; a designer must compromise between an acceptable amount of vibration and a reasonable manufacturing cost.

In some places the excitation or shaking force is inherent in the machine. Even a relatively small excitation force can cost an undesirably large response near resonance, especially in lightly damped system. In these cases, the magnitude of the