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THE EFFECT OF PACK-CARBURIZING METHOD TO THE HARDNESS OF AISI 1050 STEEL

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CONTENTS

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ABSTRACT

AISI 1050 steel (roller chain) besides others is an important component in vehicles especially motorcycle. Many reports showed that low quality, motorcycle roller chain can easily break and cause fatal accident to the rider.

In order to avoid the accident due to roller chain failure, the components should have certain quality as specified by Malaysian Standards.

The objective of this project is to get the optimum hardness of the AISI 1050 steel (roller chain). To obtain the required hardness, pack-carburizing is carried out both at the laboratory and factory.

LITERATURE REVIEW

The definition of heat treatment given in the metals handbook is:

" A combination of heating and cooking operations, timed and applied to a metal or alloy in the solid state in a way that will produce desired properties".

All basic heat treating process for the steel involve the transformation or decomposition of austenite. The nature and appearance of these transformation products determine the physical and mechanical properties of any given steel.

Steel are a class of iron-carbon alloys with other elements added, which comprise one of the most widely used materials, both as final products *(e.g. automobile parts, electrical transformer parts)* an in manufacturing equipment for processing *(e.g. rolling mills for fabricating copper sheet, extrusion presses for processing polymers, reactors for carrying out chemical reactions)*. One of the main reasons for their wide use is the range of properties which can be induced by various heat-treating procedures.

There are a number of heat-treatment that can be employed to obtain the desired properties. The choice is strongly controlled by the economics of the situation; not only for the most economical steel but the most economical heat-treatment, must considered. For example, for machining steels a structure of primary ferrite and pearlite may be desired. This can be obtained by cooling very slowly (e.g. furnace cooling) from the