

UNIVERSITI TEKNOLOGI MARA

**STUDY OF HARDENABILITY OF MILD STEEL
AND MEDIUM CARBON STEEL BY JOMINY TEST**

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ABSTRACT

Heat treatment of steels is one of the most significant aspects of engineering metallurgy, as it enhances a number of physical and mechanical qualities that are beneficial in a variety of structural applications. The process of heating and cooling a metal or alloy in its solid form to refine grain size and a combination of characteristics in order to get the desired microstructures is known as heat treatment. Previous research that did similar experiment, their results were too narrow and simple, like using only one type of steel or using Brinell Hardness Test. This experiment however uses both Mild Steel and Medium Carbon Steel and uses Vickers Hardness Test which is more accurate than Brinell. The major purpose of this research is to show the difference between Mild Steel's and Medium Carbon Steel's mechanical hardness before and after a heat treatment like the Jominy Test. Research proposes that both Mild Steel and Medium Carbon Steel are supposed to harden after going through heat treatment, which would make for better construction and manufacturing materials. However, the results of the experiment show that these steels have become softer and not harder. The final outcome turned out to be more favourable than anticipated. After even more intensive investigation, it was discovered that harder steel did not necessarily translate into stronger structures and machines. Due to the fact that they are soft, malleable, and easy to mould into the appropriate shape, soft steels are more commonly utilised.

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