

## INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh quenching dengan variasi suhu air sebagai media pendinginan terhadap kekerasan, kekuatan tarik, kekuatan dampak dan analisis struktur mikro.

Baja karbon St 42 dipanaskan dalam oven hingga suhu 900°C dan dipertahankan selama 60 menit kemudian didinginkan secara tiba-tiba ke dalam air yang bersuhu 27°C, 50°C dan 80°C. Baja karbon St 42 yang di quenching kemudian di uji kekerasan, uji tarik, uji dampak dan analisis struktur mikro.

Hasil penelitian menunjukkan bahwa baja karbon St 42 yang di quenching dengan variasi suhu air sebagai media pendingin mengalami penurunan kekerasan seiring dengan semakin besarnya suhu media pendingin. Sedangkan kekuatan tarik dan harga tenaga patah mengalami peningkatan seiring dengan semakin besarnya suhu media pendingin. Gambar struktur mikro baja karbon St 42 yang di quenching dengan variasi suhu air sebagai media pendingin tidak menunjukkan perbedaan yang jelas/significant.

## **ABSTRACT**

The aim of this research is to know the influence of quenching with the variation of water temperature as a cooler media toward the hardness, tensile strength, impact strength and the analysis of micro structure.

Carbon steel St 42 was heated in the oven until temperature of 900°C and handled for 60 minutes, then made cool suddenly into water which had temperature 27°, 50° and 80°C. On the carbon steel St 42 quenched, then examined its hardness, tensile, impact and the analysis of micro structure.

The result of the research shows that the carbon steel St 42 quenched with the variation of water temperature as cooler media undergone the hardness degradation, together with the improvement of cooler media temperature. While , the tensile strength and the value of broken energy increased together with the improvement of cooler media temperature. The picture of micro structure carbon steel St 42 which was quenched with the variation of water temperature as a cooler media did not show the clearly or significant difference.