

## ABSTRAK

### **PENGARUH *HEAT TREATMENT* DENGAN VARIASI MEDIA *QUENCHING* AIR GARAM DAN OLI TERHADAP STRUKTUR MIKRO DAN NILAI KEKERASAN BAJA PEGAS DAUN AISI 6135**

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Telah dilakukan penelitian mengenai pengaruh *heat treatment* dengan variasi media *quenching* air garam dan oli terhadap struktur mikro dan nilai kekerasan baja pegas daun AISI 3165. Proses pemanasan dilakukan pada temperatur 800°C selama 60 menit, lalu proses *quenching* dengan variasi media pendingin 100% air garam dan campuran 50% air garam : 50% oli, dan *tempering* pada temperatur 600°C selama 45 menit. Hasil uji komposisi kimia menunjukkan baja pegas daun termasuk baja karbon sedang (C=0,343%) dan baja *chromium-vanadium* (AISI 6135). Hasil uji kekerasan sampel *raw material* sebesar 42,27 HRc, sampel dengan media *quenching* 100% air garam sebesar 34,27% HRc, dan sampel dengan media *quenching* campuran 50% air garam : 50% oli sebesar 38,27 HRc. Hasil struktur mikro pada sampel *raw material* menunjukkan fasa ferit dan perlit. Sampel hasil *quench-temper* menggunakan media *quenching* 100% air garam terbentuk fasa ferit, austenit sisa dan martensit temper yang lebih rapat dan menyebar merata dibandingkan sampel hasil media *quenching* campuran 50% air garam : 50% oli, sehingga nilai kekerasan menurun.

**Kata kunci:** Baja pegas daun, *quenching*, struktur mikro, *tempering*, uji kekerasan.

## ABSTRACT

### THE EFFECT OF HEAT TREATMENT WITH VARIATIONS OF THE BRINE AND OIL QUENCHING MEDIUM TO MICROSTRUCTURE AND HARDNESS VALUE IN THE LEAF SPRING STEEL AISI 6135

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*It has been conducted research the effect of heat treatment with variations of the brine and oil quenching medium to microstructure and hardness value in the leaf spring steel AISI 6135. The heating process at a temperature of 800°C for 60 minutes then quenching with variations of 100% brine and a mix of 50% brine : 50% oil quenching medium, and tempering at temperature 600°C for 45 minutes. Chemical composition test showed that leaf spring steel is medium carbon steel type and chromium-vanadium steel (AISI 6135). The result of the hardness test for raw material is 42,2 HRc, for quenching with 100% brine is 34,27% HRc and for quenching a mix of 50% brines : 50% oil is 38,27 HRc. The test result microstructure at raw material sample showed ferrite and perlite phase, quench-temper of 100% brine formed ferrite retained austenite and martensite temper phase more tightly, evenly spread than mix 50% brine : 50% oil, so that the hardness value decrease.*

**Keywords:** *Hardness testing, leaf spring steel, microstructure, quenching, tempering.*