

INTISARI

Pada pembuatan komponen kendaraan metode *die casting*, proses nitridisasi memegang peranan penting dalam peningkatan umur pakai *dies*. Proses nitridisasi yang dilakukan pada *dies* sebelum digunakan untuk proses *casting* bertujuan untuk meningkatkan umur pakai *dies*. Inovasi dengan melakukan pengulangan proses nitridisasi *dies* yang sudah dipakai berguna untuk lebih meningkatkan umur pakai dan kapasitas produksinya, sehingga akan mengurangi *cost*.

Proses nitridisasi dilakukan 3 tahap pengulangan, dimana sampel ada 6 buah. Sampel nomer 1 dan 2 dilakukan nitridisasi tiga kali, sampel nomer 3 dan 4 dilakukan nitridisasi dua kali, sampel nomer 5 dan 6 dilakukan nitridisasi satu kali. Pada sampel nomor 1 dan 4 temperatur proses dinaikan 20°C pada proses nitridisasi yang kedua. Lapisan yang terbentuk pada setiap tahap pengulangan proses nitridisasi dilakukan karakterisasi berupa pengujian distribusi kekerasan mikro, pengukuran ketebalan lapisan *nitriding* dan pengukuran ketebalan lapisan *white layer*.

Hasil dari karakterisasi sampel yang mengalami proses nitridisasi berulang menunjukkan : Ketebalan lapisan *nitriding* yang semakin tebal, meningkatnya distribusi kekerasan mikro, bertambahnya tebal *compound layer* atau *white layer* yang terbentuk pada permukaan material.

ABSTRAK

In the manufacturing process of vehicle components for the die casting method, nitriding process plays an important role in increasing the life of dies. The nitriding process is carried out on dies before being used for the casting process, which aims to increase the life of dies. Innovation is done by the process of repeating nitriding dies that has been used is useful to further increase the service life and production capacity, thereby reducing costs.

The nitriding process was carried out in 3 stages of repetition, in which there were 6 samples. In samples number 1 and 2, nitriding was carried out three times, samples number 3 and 4 were nitrided twice, samples number 5 and 6 were carried out one-time nitriding. In samples number 1 and 4 the process temperature is increased by 20oC in the second nitriding. The layers formed at each stage of nitriding repetition were characterized in the form of micro hardness distribution testing, nitriding layer thickness measurement and white layer layer thickness measurement.

The results of the characterization of samples undergoing repeated nitriding processes show : Thickening of the nitriding layer thickness, increasing the distribution of micro hardness, increasing the thickness of the compound layer or white layer formed on the surface of the material.