ABSTRAK

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Program Studi : *Teknik Mesin*

Judul : *PENGARUH QUENCHING PADA TEMPERATUR 850ºC DENGAN HOLDING TIME 15 MENIT TERHADAP PROPERTI MATERIAL WHITE CAST IRON YANG DIAPLIKASIKAN KEPADA GRINDING BALL PADA BALL MILL UNTUK PRODUKSI SEMEN*

Pembimbing : *Uum Sumirat, M.Pd., M.T.*

Indonesia memiliki beberapa pabrik semen yang mencukupi kebutuhan, tetapi harga semen masih tinggi penyebabnya semua pabrik semen masih menggunakan *grinding ball* impor yang biaya pengadaanya mahal. Apabila *grinding ball* tersebut dapat dibuat di Indonesia, diharapkan harganya lebih murah sehingga biaya produksi semen dapat diturunkan, *Grinding ball* tersebut terbuat dari *white cast iron* yang mempunyai karakteristik kekerasan tinggi, tahan aus, tangguh, tahan korosi serta tahan terhadap temperatur tinggi untuk menanggung beban dan lingkungan selama proses penggilingan batuan, supaya harganya murah digunakan material *White Cast Iron low Chromium* untuk pembuatan *grinding ball* dan dilakukan *heat treatment* dengan metode quenching pada 850ºC dengan *holding time* 15 menit untuk memperoleh kekerasan yang sama dengan grinding ball impor, hasil penelitian didapatkan harga kekerasan 635,30 HB, harga impak 2,348 j/mm^2 serta struktur mikro yang mendukung peningkatan tersebut.

Kata kunci: *Grinding ball, white cast iron, quenching, holding time*

ABSTRACT

Nama	*: Agung Saputra*
Program Studi	*: Teknik Mesin*
Judul	*: "THE EFFECT OF QUENCHING AT 850ºC TEMPERATURE WITH 15 MINUTES HOLDING TIME ON WHITE CAST IRON MATERIAL PROPERTIES APPLICED TO GRINDING BALLS ON BALL MILLS FOR CEMENT PRODUCTION*
Pembimbing	*: Uum Sumirat, M.Pd., M.T.*

Indonesia has several cement factories that are sufficient for their needs, but cement prices are still high, because all cement factories still use imported grinding balls, which are expensive to procure. If the grinding ball can be made in Indonesia, it is hoped that the price will be cheaper so that cement production costs can be lowered. The grinding ball is made of white cast iron which has the characteristics of high hardness, wear resistance, toughness, corrosion resistance and resistance to high temperatures to bear the load and environment during the rock grinding process, so that the price is cheap, White Cast Iron low Chromium material is used for the manufacture of grinding balls and heat treatment is carried out using the quenching method at 850ºC with a holding time of 15 minutes to obtain the same hardness as imported grinding balls, the results of the study show that the hardness price is 635,30 HB, impact value 2,348 j/mm^2 and the microstructure supporting the increase.

***Keywords**: Grinding ball, white cast iron, quenching, holding time*