

## Penggunaan efamegli (pelumas bio) dan minyak mineral sebagai base oil pada pembuatan gemuk bio = Usage of efamegli (bio-lubricant) and mineral oil in bio grease production

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### Abstrak

Sebagian besar gemuk yang dijual di pasaran menggunakan bahan base oil minyak mineral dan thickening agent sabun lithium. Aplikasi gemuk dijumpai pada sistem pelumasan yang sederhana seperti pelumasan ball bearing pada as roda dan lain-lain. base oil EFAMEGLI dan mineral oil. Gemuk yang dibuat ini diharapkan mempunyai sifat biodegradability dibandingkan dengan gemuk dengan bahan base oil minyak mineral, dikarenakan gemuk bio menggunakan base oil minyak nabati. Bahan thickening yang digunakan adalah sabun kalsium dan litium, dimana gemuk kalsium diperuntukkan pada gemuk foodgrade sedangkan gemuk litium untuk gemuk tahan panas. Pembuatan gemuk bio dan semi bio dibuat dengan autoclave (reaktor tertutup), dengan temperatur pemasakan 160-200\_C. Kemudian dilakukan pendinginan dan homogenisasi. Adapun uji karakteristik yang dilakukan diantaranya penetration, dropping point dan four ball test. Dari hasil pengamatan secara visual warna yang dihasilkan putih dan bentuknya halus (homogen). Dari hasil uji pada gemuk semi bio dengan komposisi sabun litium 15% menunjukkan bahwa dengan pengaruh komposisi EFAMEGLI dapat menaikkan dropping point dan memperbaiki anti keausannya. Sedangkan untuk penetrasi dengan NLGI # 2 dan 3 terdapat pada komposisi EFAMEGLI 20-40%.

*Most of grease that sold in the market is using base oil made form mineral oil and thickening agent from lithium soap, Grease application, it is use don simple lubrication system such as ball bearing on axle Wheel and etc. In this experiment the grease had been made from mixing base oil from EFAMEGLI and mineral oil. The thickening material that had been used are calcium soap and lithium soap. The grease that had been made are expected to have a better biodegrability and stability compared to grease with mineral oil as base oil. This could be happened because of usage of vegetable oil as base oil, which has an edible and biodegradeble char\_cter compared to mineral oil. Bio and semi bio grease production wih autoclave (close reactor) with heater temperatur at 160-200 OC. After that cooling and homogenisation. The test characteristic such as penetration, dropping point dan four ball test. By using vegetable oil and mineral oil in biogrease production we could know that the grease are made with autoclave (close reactor) which has a whiter color and more refined (homogen). The test result shown that to obtain biogrease 15 % lithium with a base oil from EFAMEGLI and mineral oil with a better penetration, dropping point and anti wornout stability compared to grease with base oil from mineral oil need much more composition of vegetable oil (EFAMEGLI) 20-40% to have NLGI number 2-3.*