

## Formulasi cutting oil berbahan dasar epoxy RBDPO = Formulation of cutting oil from epoxy RBDPO as the base oil

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### Abstrak

Pelumas cutting oil dibuat dengan menggunakan epoxy RBDPO (refined-bleacheddeodorized palm oil) sebagai minyak dasar. epoxy RBDPO kemudian diformulasikan dengan aditif emulsifier dan tekanan ekstrim. Pengujian mengenai ketahanan oksidasi, kestabilan emulsi, dan ketahanan aus bagi epoxy RBDPO terformulasi aditif, serta cutting oil komersial dilakukan. Pengujian ketahanan oksidasi dilakukan dengan parameter bilangan asam, pengujian kestabilan emulsi dilakukan dengan parameter indeks kestabilan emulsi, kestabilan emulsi relatif, dan persentase deplesi, sedangkan pengujian ketahanan aus menggunakan mesin pengujian four ball.

Hasil menunjukkan epoxy RBDPO terformulasi aditif (3,25% emulsifier, 7,5% extreme pressure) memiliki ketahanan oksidasi yang lebih baik dibandingkan cutting oil komersil. Sedangkan untuk pengujian kestabilan emulsi dan pengujian ketahanan aus, epoxy RBDPO membutuhkan konsentrasi aditif yang lebih sedikit (3,25% emulsifier, 7,5% extreme pressure) dibandingkan dengan cutting oil komersil (6,25% emulsifier, 10% extreme pressure).

.....Cutting oil lubricant was made using Epoxy RBDPO (refined-bleached-deodorized palm oil) as the best oil. Then epoxy RBDPO was formulated with emulsifier and Extreme pressure additives. A comparative study of oxidation resistance, emulsion stability, wear resistance was carried out on epoxied RBDPO with additives and cutting oil commercial lubricant. A study of oxidation resistance was corrected by acid number, a study of emulsion stability was corrected by emulsion stability index, stability of emulsion relative, and percent of depletion, while the wear test using a four ball wear machine.

The result showed that epoxied RBDPO formulated with additives (3,25% emulsifier, 7,5% extreme pressure) have better oxidation resistance than cutting oil commercial lubricant, and for emulsion stability and wear resistance need less concentration of additives (3,25% emulsifier, 7,5% extreme pressure) than cutting oil commercial lubricant (6,25% emulsifier, 10% extreme pressure).