

CHAPTER V

CONCLUSION

By this method, additives in synthetic lubricants were extracted with methanol. After separation and evaporation of the solvent under reduced pressure, the crude MeOH extracts were obtained. Column chromatography was used for separating additives in the crude MeOH extract. The columns were eluted with hexane to isolate base oil, washed with 5%chloroform-hexane to desorb antioxidants and washed with chloroform-hexane to desorb dispersant and antiwear agent. The molecular weight of the base oil in synthetic lubricants were analyzed by GPC-Evaporative Mass Detector (EMD).

Analyzed by this method, additives in synthetic lubricants are summarised in Table 5.1.

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Table 5.1 Additives in synthetic lubricants

Synthetic Lubricant	Exxon	Shell	BP	Castrol	Mobil
Molecular Weight of Base Oil	831	933	707	660	812
Antioxidants					
2,6-bis(1,1-dimethylethyl)-2,5-cyclohexadiene-1,4-dione		X			
butylated hydroxytoluene	X	X	X	X	X
mixture of alkylated diphenylamine	X	X	X	X	
2,4-bis(dimethylbenzyl)-6-t-butylphenyl		X			
2-t-butyl-4-(dimethylbenzyl)phenol				X	
2,4-bis(dimethylbenzyl)phenol		X		X	
2,6-bis(t-butyl)-4-(dimethylbenzyl)phenol			X	X	
bis(3,5-di-tert-butyl-4-hydroxyphenyl)methane					X
4-(1-methylpropyl)phenol		X			
4-(2,2,3,3-tetramethylbutyl)phenol	X				
Antiwear and Dispersant					
2,-octylphenyl*		X			
1-phenyl-1-nonanol*		X			
2-n-hexylphenol*		X			

* Also antioxidants

Table 5.1 (Continued)

Synthetic Lubricant	Exxon	Shell	BP	Castrol	Mobil
Antiwear and Dispersant					
4-dodecylphenol*			X		
dodecylphenol*			X	X	
mixture of long chain ester compound	X	X			
mono(2-ethylhexyl)hexanedioate				X	
methyl-(9Z)-octadecenoate				X	
methyl-(9E)-dodecenoate			X		
didecyl decanedioate					X
dioctadecyl phosphonate					X
diisooctyl phthalate			X		X
tridecanol				X	
1-tetracosanol				X	
1-nonadecanol				X	
heptanoic anhydride				X	
octanoic acid	X				
decanoic acid	X				

* Also antioxidants