

---

# The Application and Use of Soltex Products in Hydrocarbon Lubricants and Lubrication Systems - Lubrication Trends

# Lubrication Trends

---

- Base-stocks constitute a major part of the lube oil formulation. An average lube consists of about 93% base oil and 7% additives.
- The quality of base will continue to evolve with paraffinic base oils dominating automotive and industrial lubricants including engine oils, transmission fluids, gear oils, due to better oxidation stability, viscosity index and lower volatility than comparable viscosity naphthenic oils.
- Naphthenic oils have lower pour points and better solvency characteristics which makes them useful for low temperature hydraulic oils, metalworking oils, cylinder lubes for large engines and greases.
- Investigate alkylate as naphthenic replacement.

# Lubrication Trends - cont

---

- New and improved refining techniques will continue to emerge. Replacement of dearomatization, solvent dewaxing and hydrofinishing steps have been replaced with hydrocracking/hydroisomerization to produce high viscosity index paraffinic base-stocks, VHVI, X-HVI base-stocks
- These base-stocks meet and exceed the API classification of Group III and Group III+
- VHVI base-stocks will continue to displace PAO products in many applications
- Group II base oils will continue to displace Group I basestock in most automotive and industrial applications
- Group I phase oil will create less supply of brightstock.
- Brightstock replacements; alkylate, PIB

# Lubrication Trends - cont

---

- Components and additive packages development will be directed to reduced emissions, decreased fuel consumption and improved energy efficiency
- Improved lubricity to allow for use of lower viscosity oils, more energy efficient
- Lower metal content in lube oil esp. in automotive crankcase oils. P in lube oil can end up in the engine exhaust and cause damage to catalytic converters and catalytic particle traps
- Reduction of P decreases lubricity, need to replace with other more effective lubricity additive. Non-volatile inorganic dispersions of P, B compounds, very small particle size graphite dispersion

# Viscosity Classifications

Ref: bobistheoilguy.com

