

Engineering Guidelines: Materials Compatible with Synthetic Base Oils

Plastic and Elastomer
Compatibility for Base Oil Families

G
F
P

Good
Fair
Poor

Solvent Compatibility
for Base Oil Families

S
W
V
I

Soluble in large fraction
Weakly soluble
Varies with grade
Insoluble



	Plastic (see notes 1 and 4)														Elastomer (see notes 2 and 4)										Solvent (see notes 3 and 4)									
	Acetal (POM)	ABS	Phenolic (PF)	Polyamide-imide (PAI)	Polyamide (nylon) (PA)	Polycarbonate (PC)	Polyester	Polyetherimide	Polyethylene (PE)	Polyimide (TPI)	Polyphenylene oxide (PPO)	Polystyrene	Polysulfone (PSU)	PTFE	Polyvinyl chloride (PVC)	Terephthalate (PBT)	Buna S	Butyl	EPDM, EPR	Fluoroelastomer	Natural Rubber	Neoprene	Nitrile	Silicone	Water	Water plus detergent	Isopropanol	Methanol	Mineral Spirits	HCFC-141b	Fluoroalkane	Hydrofluorocarbon	Hydrofluoroether	Halogenated Blends
Synthetic Hydrocarbon Includes: polyalphaolefin (PAO) Viscosity Index (VI) = 125-250 Good lubricity	G	G	G	G	G	G	G	F	G	G	F	G	G	F	G	P	P	P	G	P	G	G	F	G	P	P	P	P	S	S	I	I	I	V
Polyglycol a.k.a. polyether Viscosity Index (VI) = 160-220 Low \$/lb	G	P	G	G	G	P	P	G	F	G	P	G	P	G	P	G	P	P	G	G	P	P	F	G	V	W	V	V	S	S	I	I	I	V
Ester Includes: diester, polyolester Viscosity Index (VI) = 120-150 Excellent lubricity, load carrying	G	P	G	G	G	P	P	G	F	G	P	P	P	G	P	G	P	P	F	G	P	P	F	F	I	W	I	I	S	S	I	I	I	V
Silicone Includes: dimethyl-, phenyl-, halogenated- Viscosity Index (VI) = 200-650 Excellent (low) volatility	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	I	W	I	I	S	S	I	I	I	V
Halocarbon Includes: chlorotrifluoroethylene (CTFE) Viscosity Index (VI) = poor Chemical resist. load carrying, low temp.	G	G	G	G	G	G	G	G	G	G	G	G	G	P	G	P	P	G	P	P	G	P	P	P	I	W	I	I	I	S	S	S	S	S
Fluoroether a.k.a. perfluoropolyether (PFPE) Viscosity Index (VI) = 100-350 Excellent inertness, lubricity, temp. range	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	I	W	I	I	I	S	S	V	V	V
Polyphenylether a.k.a. PPE Viscosity Index (VI) = 40-60 Excellent lubricity, volatility, rad. resist.	G	P	G	G	G	P	P	G	F	G	P	P	P	G	P	G	P	P	F	G	P	P	F	F	I	W	I	I	S	W	I	I	I	V

- Note 1: For cross reference to trade names, consult *Modern Plastics Encyclopedia '97*, McGraw-Hill Company, New York, 1997.
- Note 2: For cross reference to trade names, consult *Blue Book 1996*: Lippincott & Peto, Akron, OH, 1996.
- Note 3: Use of most organic solvents is subject to regulatory restrictions. Consult your plant safety officer for proper handling.
- Note 4: Material compatibility can vary with mfgs. grade, lubricant grade, applied temp., and strain. **Nye Lubricants recommends that design engineers test all synthetic**

lubricants with any plastic or elastomeric component to ensure compatibility in their application. Consult Nye Lubricants for more information.