

Fig. 1

<u>Reference Oils</u>	<u>Benchmark Lubricant</u>	<u>HFRR Avg Film (%)</u>	<u>HFRR Avg Friction</u>	<u>HFRR Avg Wear (Microns)</u>
Ref.1	Polyalphaolefin, 4 cS KV100 (PAO 4)	4	0.351	10.27
Ref.2	Partial formulation (absent FM, ZDDP)	3	0.166	2.81
Ref.3	Full formulation	31	0.104	1.13

Fig. 2

Example	Stabilized / Solubilized Additive Composition in Basestock				Formulation Type	HFRR Performance of Additive Composition in Formulated Lube			
	"M" in M-Stearate	Surfactant	Wt. Ratio; M-Stearate to Surfactant	Basestock (balance)		Avg Film (%)	Avg Friction	DISK Wear (um)	Improved Wear vs. Reference?
1	H	Span 80	10 to 1	PAO4	Partial	94	0.108	0.60	Y
2	H	Span 80	10 to 1	PAO4	Partial	91	0.106	0.65	Y
3	Zn	Igepal CO-520	5 to 1	PAO4	Partial	99	0.105	0.50	Y
4	Zn	Igepal CO-520	5 to 1	PAO4	Full	25	0.155	-2.1	N
5*	Zn	Pluronic L31	5 to 1	PAO4 PPO(10%)	Partial	99	0.107	0.50	Y
6*	Zn	Pluronic L31	5 to 1	PAO4 PPO(10%)	Full	67	0.130	1.4	N

Fig. 2 (Cont.)

Example	Stabilized / Solubilized Additive Composition in Basestock				Formulation Type	HFRR Performance of Additive Composition in Formulated Lube			
	"M" in M-Stearate	Surfactant	Wt. Ratio; M-Stearate to Surfactant	Basestock (balance)		Avg Film (%)	Avg Friction	DISK Wear (um)	Improved Wear vs. Reference?
7	Zn	Pluronic L31	5 to 1	PAO4	Partial	99	0.103	0.64	Y
8	Zn	Pluronic L31	5 to 1	PAO4 PPO(8%)	Partial	4	0.167	3.15	N
9**	Zn	Pluronic L31	5 to 1	PAO4 PPO(20%)	Partial	52	0.128	1.82	Y
10	Zn	Pluronic L31	5 to 1	PAO4	Partial	40	0.139	2.34	Y
11	Zn	Pluronic L31	5 to 1	PAO4	Partial	4	0.167	2.80	N
12	Zn	Pluronic L31	5 to 1	PAO4	Full	50	0.135	1.90	N

Fig. 2 (Cont.)

Example	Stabilized / Solubilized Additive Composition in Basestock				Formulation Type	HFRR Performance of Additive Composition in Formulated Lube			
	"M" in M-Stearate	Surfactant	Wt. Ratio; M-Stearate to Surfactant	Basestock (balance)		Avg Film (%)	Avg Friction	DISK Wear (um)	Improved Wear vs Reference?
13*	Mg	Pluronic L31	5 to 1	PAO4 PPO(20%)	Partial	54	0.136	2.00	Y
14****	Zn	Pluronic L61	5 to 1	PAO4	Partial	8	0.162	2.10	Y
15****	Zn	Pluronic L61	5 to 1	PAO4	Partial	12	0.166	2.85	N
16	Zn	Triton X15	5 to 1	PAO4	Partial	4	0.174	2.50	Y
17	Zn	Triton X100	5 to 1	PAO4	Partial	8	0.156	3.00	N
18	Zn (melted into finished lube composition)	-	-	PAO4	Partial	99	0.107	0.44	Y