

NSF HX-1	Biobased	Bar & Chain	Greases	Lubricant Oil	Metaworking	Gear Oil	Engine Oil	Ecolabel LuSC	Hydraulics
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Tackifiers		Typical Viscosity cSt @ 100C	Treat Level wt %						
V-176	Good shear stability and good string length. PIB in paraffinic oil.	3,000	0.5 – 2.0						
V-177	Concentrated PIB tackifier with good shear stability and string length.	10,500	0.5 – 2.0						
V-178	Good shear stability and good string length. High concentrate PIB in paraffinic oil. V-378 for high temperature.	4,000	0.5 – 2.0						
V-175	Ultra-high molecular weight PIB in oil for low treat, textile/fiber applications. V-475 for HX-1 with high color stability.	6,000	0.5 – 2.0						
V-198A	Excellent string length and fair shear stability. PIB in paraffinic oil. V-498 for HX-1 applications.	5,000	0.5 – 2.0						
PARATAC	Good shear stability and good string length. PIB in paraffinic oil. PARATAC XT for 900 cSt @ 100°C with good string.	3,000	0.5 – 2.0						
V-188	OCP tackifier with excellent shear stability and string length.	4,000	0.5 – 2.0						
V-422	Good shear stability and good string length. HX-1 grade, PIB in technical white oil.	3,000	0.5 – 2.0						
V-584	LuSC/VGP and HX-1 tackifier for vegetable oil formulations. Provides excellent string.	2,500 @ 40C	3.0 - 10.0						
V-802P	Water-white aqueous tackifier for environmentally friendly water based, PAG, and emulsion lubricants.	40,000 @ 40C	0.3 – 5.0						

Viscosity Modifiers		Shear Stability Index (PSSI) ASTM D6278	Thickening Efficiency in ISO 32, cSt @ 100C	Typical Viscosity cSt @ 100C	Treat Level wt %						
V-158F	Liquid OCP viscosity modifier in paraffinic oil. V-158FN for low-temp naphthenic version.	45	10% = 12.5	1,600	5 – 10						
V-113	Bale form OCP viscosity modifier. 6.6wt% = 1000 cSt @ 100°C	50	1% = 14.6	Bale	0.5 – 2.0						
V-201	Pellet form OCP viscosity modifier. 5.4wt% = 1000 cSt @ 100°C	60	1% = 21.0	Pellet	0.5 – 2.0						
V-255	Pellet form shear stable OCP viscosity modifier. 12% = 1000 cSt @ 100°C	25	1% = 10.5	Pellet	0.5 – 2.0						
V-460	Liquid shear stable OCP viscosity modifier, HX-1 approved.	20	10% = 13.6	3,000	5 – 10						
V-508F	Liquid viscosity modifier for vegetable oil, esters. Most concentrated and versatile option.	28	10% = 22.9	7,000	5 – 15						
V-521	Liquid viscosity modifier for vegetable oil, esters. Exceptional low temperature fluidity.	30	10% = 16.4	5,000	5 – 15						
V-515	Liquid viscosity modifier for vegetable oil and PAO/ester blends. Slight tack.	50	10% = 12.0	8,000	5 – 15						
MH-2000	Liquid PMA VII with exceptional shear stability for hydraulic fluid (KRL shear loss = 35%)	1	10% = 9.2	1,100	5 – 20						
MG-3000	Liquid PMA VII with exceptional shear stability for gear oils (KRL shear loss = 20%)	0	10% = 8.6	550	10 – 40						
MN-3500	Liquid PMA VII in naphthenic oil for extreme low temperature applications.	9	10% = 12.0	900	5 – 20						
MD-8000	Liquid dispersant PMA for improved varnish/sludge control in tractor HF and ATF.	40	10% = 16.0	2,000	1 – 5						

Grease Additives		Treat Level wt %						
V-207	Powder polymer for quick dissolving in cooling oil. Superior shear stability and water spray-off for most greases. V-211 for HX-1.	0.5 – 2.0						
V-4020	Pellet polymer to reduce water spray off in grease at low treat. V-4004A for convenient liquid form and V-4033 for extra concentrated liquid.	0.2 – 1.0						
V-191	Polymer emulsion stable against water during and after production. Improved water spray-off and tack in organic and synthetic greases.	0.5 – 2.0						
V-4051	Liquid polymer concentrate in bio-based ester to improve shear stability and water spray-off. Easily handled. Ecolabel / LuSC / VGP status.	0.5 – 2.0						
V-4064	Flake polymer to improve oil bleed in low polarity HX-1 greases.	0.5 – 2.0						

Specialty Packages & Additives		Treat Level wt %						
CI-426	Corrosion inhibitor and anti-wear additive for HX-1. CI-427 for low color and wide read-across. For additional extreme pressure, CI-426EP .	0.5 – 2.0						
GA-614	Multifunctional industrial gear oil package. Variable treat rate. >60 lb. Timken, 12+ FZG, up to 620 kgf EP. Meets US Steel 224, DIN 51517 Part 3	1.5 – 5.0						
HF-595	Biobased hydraulic fluid package for Ecolabel and EAL hydraulics. Compatible in a variety of eco-friendly base fluids and mineral oils.	2.2						
RD-540	Biobased rock drill, air tool, and open gear package. >70 lb. Timken and 315 kgf EP weld. Emulsifying. RD-540CP for demulsifying.	2.2						
WA-64	Light color, low odor, compatible in a range of base oils. Cincinnati Fives stick-slip test.	1.75						
V-162	Anti-mist additive for oil based coolants. Use MW-612 for aqueous or synthetic fluids.	0.02 – 0.1						
WA-60SF	Light color, low odor sulfur-free way oil package. Passes Cincinnati Fives stick-slip test. Adds no color to allow water-white way oils.	1.5						

Cold Flow Improvers		Treat Level wt %						
PD-585	Concentrated cold flow improver for vegetable oils. Doubles as shear stable VI improver for Ecolabel formulations (1800 cSt @ 100°C, 7 PSSI).	0.1 – 1.0						
PD-590	Readily biodegradable cold flow improver, meets LuSC Ecolabel and EPA Safer Choice certifications. No known carcinogens.	0.1 – 1.0						
PD-610	Mineral oil pour point depressant for Gr. I/II base oils. PD-620 for lighter Gr. I/II oils. PD-630 for Gr. III oils.	0.1 – 0.5						

Purchasing Information

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