

FUNCTIONAL PRODUCTS INC.

Innovative Chemistry for Lubricants

Technical Data Sheet

FUNCTIONAL V-732

ETHYLENE-PROPYLENE OLIGOMER (EPO) – 2000 cSt

APPLICATION:

FUNCTIONAL V-732 is a pure liquid viscosity modifier and synthetic base stock with high thickening efficiency, excellent shear stability, and low temperature fluidity for high performance at lower cost per treat. **FUNCTIONAL V-732** is effective in high VI hydraulic fluids, industrial gear oils, automotive gear oils (75W), and grease.

FUNCTIONAL V-732 is NSF HX-1 and Ecolabel LuSC listed.

COMPOSITION:

FUNCTIONAL V-732 is a liquid, low molecular weight ethylene-propylene copolymer with no diluent.

Typical Properties	
Appearance, Visual	Clear to Slight Haze Slight Yellow to Yellow
Color, ASTM D1500	1.0
Kinematic Viscosity, ASTM D445	2,000 cSt @ 100°C 40,000 cSt @ 40°C
Viscosity Index, ASTM D2270	296
Density (lb/gal), ASTM D1475	7.14 lb/gal
Density (g/mL) @ 20°C/68°F	0.856 g/mL
Flash Point, ASTM D92 COC	290°C (554°F)
Thickening Efficiency, 10wt% in ISO 32 Group I	13.8 cSt @ 100°C
Shear Stability Index (PSSI), ASTM D6278	0 SSI
20hr KRL Shear Stability, CEC L-45-A-99	15 SSI

TREATMENT LEVEL:

Treatment levels of 2 – 30% are typical in industrial lubricants and greases. **FUNCTIONAL V-732** can be used as either a VI improver or a shear stable base stock depending on the need. **FUNCTIONAL V-732** is compatible in most petroleum oils, synthetic oils, PAO, and esters.

Full synthetic formulas using EPO viscosity modifiers may require 5-10wt% ester for solubility.

HANDLING:

Dissolving is best accomplished with continuous agitation at temperatures of 104-140°F (40-60°C). **FUNCTIONAL V-732** may be preheated in a hot room or tank at up to 176°F (80°C) to aid in pumping but long term storage should remain below 140°F (60°C).

FUNCTIONAL V-732 is a non-hazardous material; see the current Safety Data Sheet.

This Technical Data Sheet and the Safety Data Sheet contain information believed to be accurate and reliable. No warranty is made, however, to information beyond the control of FUNCTIONAL PRODUCTS INC. The engineering and management personnel of the user are responsible for determining the suitability of this or any product for any specific application, and this information is offered to them for that purpose.

Functional Products, Inc. 8282 Bavaria Rd. Macedonia, OH 44056

Ph: 330.963.3060 Fax:330.963.3322

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Suggested* Treat Levels for FUNCTIONAL V-732:

Treat Rates in 100N Group II Oil for Hydraulic Fluids or Circulating Oils:

ISO VG	Treat Level (wt%)	40°C Viscosity, cSt	100°C Viscosity, cSt	VI
ISO 22	0.0%	20.0 cSt	4.2 cSt	114
ISO 32	6.7%	33.0 cSt	6.7 cSt	166
ISO 46	8.1%	46.0 cSt	8.7 cSt	171
ISO 68	12.0%	68.0 cSt	12.2 cSt	179

Treat Rates for 600N Group II Oil in Heavy Gear Oils or Greases:

Treat Level (wt%)	40°C Viscosity, cSt	100°C Viscosity, cSt	Viscosity Index
5	169.3	18.84	126
10	266.8	27.57	136
15	387.3	39.06	150
20	558.6	54.25	161
30	1175.4	99.07	173

Automotive Gear:

75W Grade Gear Formulations			
Grade	75W90	75W90	75W140
FUNCTIONAL V-732	15.8	12.6	18.3
4 cSt Group III	79.7	--	--
6 cSt Group IV	--	83.4	67.7
FUNCTIONAL GA-614	4	4	4
FUNCTIONAL PD-630	0.5	--	--
4 cSt Adipate Ester	--	--	10
KV100, cSt	18.5	17.7	25.7
KV40, cSt	110.6	113.6	171.8
VI	187	172	185
-40C Brookfield, cP	136,400	58,800	102,200

* These treat levels are approximates. Exact treat levels will require experimentation in a full formulation and will vary due to base oil and other additive packages (anti-wear, EP, corrosion inhibitors, AO, pour point depressants, etc.).



Nonfood Compounds
Program Listed HX-1, HX-2
Registration No. 173077

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