FUNCTIONAL PRODUCTS INC.

Innovative Chemistry for Lubricants

Technical Data Sheet

FUNCTIONAL V-762F

ISO 5500 'Low Temperature Polyolefin (LT-PO)' Base Stock for Paraffinic Oils

APPLICATION:

FUNCTIONAL V-766 is an ideal and convenient thickener for preparing shear stable high VI (140+) and very high VI (180+) industrial hydraulic fluids in paraffinic and synthetic oils.

The superior shear stability and handling viscosity of **FUNCTIONAL V-762F** versus traditional polymethacrylate technology allows it to act as a high viscosity synthetic base stock at treat rates equivalent to standard PMA viscosity modifiers for top-tier industrial hydraulic fluid.

COMPOSITION:

FUNCTIONAL V-766 is a proprietary mix of low-temperature polyolefin in paraffinic oil.

Typical Properties	
Appearance	Colorless to Yellow
Kinematic Viscosity, ASTM D445	5600 cSt @ 40˚C 1000 cSt @ 100˚C
Viscosity Index	406
Density (lb/gal)	7.34 lb/gal
Thickening Efficiency, 10wt% in 110N Group II	50.4 cSt @ 40°C, 10.2 cSt @ 100°C
Flashpoint, ASTM D92 COC	>150˚C (302˚F)
Shear Stability Index (PSSI), ASTM D6278 (15wt%)	0 SSI
20hr KRL Shear Stability, CEC L-45-A-99 (15wt%)	< 5 SSI

TREATMENT LEVEL:

FUNCTIONAL V-766 is recommended at 5 – 20wt% in paraffinic Group I-III oil to prepare high VI (140+), very high VI (180+), and super high VI (220+) hydraulic fluids. See next page for formulation examples.

Due to the relatively low viscosity of the base oil, **FUNCTIONAL V-762F** is intended as a VI improver and thickener for hydraulic fluids under normal conditions. See Notice on next page.

HANDLING:

FUNCTIONAL V-766 handles easily; see the current Safety Data Sheet.

FUNCTIONAL V-766 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).

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NOTICE:

FUNCTIONAL V-762F is intended for lubricants operating within temperature ranges from “average” (70-100°C / 158-212°F) to “very low” (<-34°C/-29°F) as defined in ISO 6743-6 guidelines.

FUNCTIONAL V-762F is not recommended for use in lubricants or greases operating in continuous service >120°C/248°F ("very high"). This includes engine or crankcase oils, automatic transmission fluids, clutch fluids, and other lubricants under severe thermal loads.

Very high temperature testing (methods like CEC L-60 and CEC L-37) may produce inadequate results in viscosity change and precipitation number. Testing at intermediate temperatures of 120-135°C (250-275°F), in ASTM D2893 and D2070 for example, is best when limiting total sulfur in the formulation to < 1.0wt% for 121°C and ideally < 0.50wt% for 135°C. Inactive sulfur packages are recommended where possible.

Best use is determined by the formulator and products must be tested against specification requirements.

FORMULATION GUIDE:

Final viscosity and viscosity index for hydraulic fluids is controlled by base oil viscosity. Based on the table below, use heavier oils (220N, 600N) to reduce treat rate and viscosity index. Use lighter base oils (70N) to increase treat rate and viscosity index.

FUNCTIONAL V-762F Treat Rate in 110N Group II

ISO VG	32	46	68	100
wt%	4.7%	9.8%	15.2%	20.6%
Viscosity Index	175	209	227	241

A pour point depressant like **FUNCTIONAL PD-620** is recommended to meet low temperature fluidity and pour point requirements for some specifications.

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