

### FUNCTIONAL HF-340

#### Ashless Hydraulic Package for Industrial Hydraulic Fluid

##### APPLICATION:

**FUNCTIONAL HF-340** is a light color, low odor additive package used to formulate ashless antiwear hydraulic fluids in monograde, high VI, and very high VI petroleum or synthetic hydrocarbon base stocks.

**FUNCTIONAL HF-340** is not recommended for use with ester base stocks.

##### COMPOSITION:

**FUNCTIONAL HF-340** contains a fully suite of additive including: antiwear additives, friction modifier, demulsifiers, defoamers, corrosion inhibitors, vapor phase corrosion inhibitor, and antioxidants with mineral oil diluent.

Typical Properties	
Appearance	Light Orange to Orange, Slight Haze
Odor	Mild
Color, ASTM D1500	≤ 3.0
Lbs per Gallon	7.85
Flash Point, COC	121°C (250°F)
Kinematic Viscosity, ASTM D445	30 cSt at 40°C
Elements	4.4wt% Phosphorus, 0.3wt% Sulfur, 0.0wt% Zn/Ca
Mineral Oil Saturated Hydrocarbons?	Yes, 20-30% typical
Mineral Oil Aromatic Hydrocarbons?	Not Detected, < 10 ppm
Biodegradability	52% OECD 301B est.

##### TREAT LEVEL:

Use **FUNCTIONAL HF-340** at 1.0wt% in a wide range of Group I/II/III/IV base stocks with VI improvers. No additional top treats should be required in low viscosity paraffinic oil.

Additional defoamer and/or demulsifier may be required with certain base oils or viscosity modifiers. **FUNCTIONAL DF-400** defoamer or **FUNCTIONAL DM-240** demulsifier are recommend in these cases at 0.05wt%. Always check the demulsibility (ASTM D1401) and foaming (ASTM D892 Seq I,II,III) when using in new formulas.

##### HANDLING:

Review the current Safety Data Sheet before use and use appropriate PPE. No heating is required to mix. Once diluted at the recommended treat rate in oil, the additive adds no hazards to the finished product.

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.

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### FORMULATION GUIDE:

**Very High VI Hydraulics Fluids:** Use **FUNCTIONAL V-762** and **FUNCTIONAL PD-620** for a hydraulic fluid formula which can easily be blended without heating.

VHVI Hydraulic Fluid	
Component	wt%
120N / 5 cSt Group II Rerefined Oil	86.3%
FUNCTIONAL HF-340	1.0%
FUNCTIONAL V-762	12.5%
FUNCTIONAL PD-620	0.2%
<b>Typical Performance</b>	
ISO Viscosity Grade	46
Viscosity Index, ASTM D2270	200+
Pour Point, ASTM D97	< -45C
Wear Scar, ASTM D4172B 40kg	0.45 – 0.50 mm
COF, ASTM D4172B 40kg	0.06 – 0.08
Foam Sequence I, ASTM D892	0/0
Foam Sequence II, ASTM D892	10/0
Foam Sequence III, ASTM D892	0/0
Wet Foam Sequence I (w/ 4vol% water), ASTM D892mod	0/0
Wet Foam Sequence II (w/ 4vol% water), ASTM D892mod	10/0
Wet Foam Sequence III (w/ 4vol% water), ASTM D892mod	0/0
Demulsibility, ASTM D1401, 130F	40/40/0 (15)

**FUNCTIONAL HF-340** can be customized to your specific base stock if needed.

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