



# FUTERRA™ SERIES

## High Performance, Ecolabel Certified Hydraulic Fluids

The FUTERRA™ Hydraulic Fluid (HF) Series is the first of its kind. These renewable hydrocarbon-based environmentally acceptable lubricants (EALs) are designed to withstand extreme conditions and corrosion while operating in severe outdoor environments. These lubricants are intended for severe service, extreme high temperature (250°F/121°C), low temperature (-40°F/-40°C) and high pressure (5000+psi/34,470 kPa) applications.

Its excellent oxidative and hydrolytic stability and near zero foaming tendency ensure that the fluids will last much longer than other EALs and conventional oils. FUTERRA™ offers greater flexibility and the ultimate system compatibility – offering drop-in replacement and broad seal compatibility. The FUTERRA™ HF Series was specially designed for demanding applications where incidental environmental exposure of the lubricant is a cause for concern.

- Ecolabel Certified
- 2013 EPA VGP Compliant
- Non-sheening\*
- Drop-in replacement for mineral oil based lubricants

Typical Properties		FUTERRA™ HF Series			
FUTERRA™ Product Number		HF 32	HF 46	HF 68	HF 100
ISO Viscosity Grade		32	46	68	100
Kinematic Viscosity, ASTM D445, cSt	@ 40°C	32	46	68	100
	@ 100°C	5.98	7.98	10.8	14.9
Viscosity Index, ASTM D2270		127	140	152	154
Specific Gravity 15.6°C (60°F), ASTM D1298		0.837	0.837	0.841	0.845
Density 15.6°C (60°F), lbs/gal		6.97	6.97	7.01	7.04
Pour Point, ASTM D97, °C		-51	-51	-51	-51
Flash Point (COC), ASTM D92, °C		226	226	238	234
Acid Number, mg KOH/g, ASTM D664		0.89	0.89	0.89	0.89

Performance Properties		FUTERRA™ HF Series			
FUTERRA™ Product Number		HF 32	HF 46	HF 68	HF 100
Steel Pin Corrosion (3 hours, 100°C), ASTM D665	Distilled Water	Pass	Pass	Pass	Pass
	Synthetic Sea Water	Pass	Pass	Pass	Pass
Foam Properties (after 10 minutes), ASTM D892	Sequence I, Tendency/Stability	0/0	0/0	0/0	0/0
	Sequence II, Tendency/Stability	10/0	10/0	10/0	10/0
	Sequence III, Tendency/Stability	0/0	0/0	0/0	0/0

\*CFR40 Part 435B

Performance Properties (cont.)		FUTERRA™ HF Series			
FUTERRA™ Product Number		HF 32	HF 46	HF 68	HF 100
Demulse Properties (54°C), ASTM D1401	Oil/Water/Emulsion	40/40/0	40/40/0	40/40/0	40/40/0
	Minutes	10	10	10	10
Copper Corrosion, ASTM D130, 3hrs @ 100 °C		1a	1a	1a	1a
Oxidation, ASTM D2272, Minutes to 25 psi Loss		1,200	1,200	1,200	1,200
Oxidation, ASTM D943		> 1,000 hrs	> 1,000 hrs	> 1,000 hrs	> 1,000 hrs
Oxidation, ASTM D943M		9,000 hrs	9,000 hrs	9,000 hrs	9,000 hrs
FZG, 10 min.		11	12	12	12
Hydrolytic Stability, ASTM D2619	Copper Weight Loss, mg/cm3	0.00	0.00	0.00	0.00
	Acidity of Water Layer, mgKOH/g	< 4.0	< 4.0	< 4.0	< 4.0
	Appearance of Copper Panel	1b	1b	1b	1b
Vickers 35VQ25 Vane Pump		Pass	Pass	Pass	Pass
Vickers V104C Vane Pump		Pass	Pass	Pass	Pass
Denison T6H20C Pump (HF-1, HF-2, HF-6)		Pass	Pass	Pass	Pass
Biodegradability, % in 28 Days, OECD 301B		> 60	> 60	> 60	> 60
Ecotoxicity	Algae, 72h EC50, ppm, OECD 201	> 10,000	> 10,000	> 10,000	> 10,000
	Daphnia magna, 48h EC50, ppm, OECD 202	> 10,000	> 10,000	> 10,000	> 10,000
	Fathead minnow, 96h LC50, ppm, OECD 203	> 1,000	> 1,000	> 1,000	> 1,000
Elastomer Compatibility	SRE-NBR-1 (80°C, 1000 hours)	Pass	Pass	Pass	Pass
	HNBR (100°C, 1000 hours)	Pass	Pass	Pass	Pass
	FKM (100°C, 1000 hours)	Pass	Pass	Pass	Pass

## OEM Approvals

FUTERRA™ HF Series meets the requirements for an extensive list of original equipment manufacturers. Please contact customer service for a full list of OEM approvals.

**For more information about RSC Bio Solutions, visit us at [rscbio.com](http://rscbio.com) or call +1 704.684.6100.**

