

Bio-HVO2 Fire Resistant Hydraulic Fluid

(FR ISO 32, 46, 68)

Bio-HVO2™ Hydraulic Fluids are readily biodegradable, fire-resistant (FR) hydraulic fluids designed for stationary and mobile systems operating in environmentally sensitive and high-heat industrial conditions. Formulated with Stabilized™ technology and containing >93–96% USDA certified new carbon biobased content, they deliver exceptional oxidation stability, anti-wear performance, and low aquatic toxicity. With high flash/fire points and low volatility, Bio-HVO2™ fluids are ideal for use in steel mills, manufacturing plants, and hydraulic systems requiring anti-wear, anti-rust, anti-foam, and anti-oxidation performance. They are certified environmentally responsible and meet leading OEM and EAL standards.

Benefits

- Readily biodegradable, environmentally non-toxic, not bioaccumulative
- Fire-resistant performance with flash points up to 299°C and fire points to 343°C
- Low volatility (<1% NOACK loss), high thermal stability
- USDA certified biobased content (>93–96%)
- High viscosity index (VI up to 218) ensures excellent shear stability
- Meets ISO/CD 15029-3 (HFDU) and ISO/TS 15029-2 spray ignition rating
- Exceeds US Steel oxidation and performance specs
- Zinc-free additive system safe for high pressure pumps
- Compatible with vane, piston, and gear pumps
- Low aquatic toxicity (LC50/EC50 >10,000 ppm)

Application / New Filling

- Recommended for use in mobile/stationary hydraulic equipment, especially fire-prone environments
- Ideal for systems requiring DIN 51524 Part 2 and 3, Parker-Denison HF-0, HF-1, HF-2, Eaton-Vickers, Sauer-Sundstrand, and Rexroth compatibility
- Can be used in applications specifying HEES or HETG fluids under ISO 15380
- Factory Mutual “Specification Tested” capable (ISO/CD 15029-3 HFDU)
- Contact Renewable Lubricants, Inc. for conversion and filling procedures

Specifications and Approvals

- Vickers M-2950-S, I-286-S
- US Steel 126, 127, 136
- DIN 51524 Part 2 and 3
- FZG Load Stage 12 (DIN 51354)
- Parker-Denison HF-0, HF-1, HF-2
- Ashless GL-1, GL-2, GL-3 gear oil compliant
- AGMA Non-EP compatible
- ASTM D-5864, OECD 301B, CEC-L33-T-82 biodegradability
- EPA 2013 VGP Compliant (EAL)
- Meets or exceeds toxicity and biodegradability standards set by US EPA and US Fish & Wildlife Service
- ISO 14001:1996 Environmental Management System
- USDA Biobased Certified (>93–96% new carbon)

TYPICAL SPECIFICATIONS

	METHOD	<u>FR ISO 32</u>	<u>FR ISO 46</u>	<u>FR ISO 68</u>
Specific Gravity @ 15.6°C	ASTM D-287	0.92	0.92	0.92
Viscosity @ 40°C	ASTM D-445	34.2	44.0	64.0
Viscosity @ 100°C	ASTM D-445	7.6	9.6	13.4
Viscosity @ -15°C, Brookfield	ASTM D-2983	17,000 cP	20,000 cP	24,000 cP
Viscosity Index	ASTM D-2270	201	212	218
Pour Point	ASTM D-97	-32°C	-30°C	-25°C
Flash Point (COC)	ASTM D-92	274°C	290°C	299°C
Fire Point (COC)	ASTM D-92	321°C	340°C	343°C
NOACK Volatility 1 hr @ 250°C	DIN51581	1%	<1%	<1%
Foam Sequence I, II, III (10 min)	ASTM D-892	0 Foam	0 Foam	0 Foam
Rust Prevention	ASTM D-665			
Distilled Water		Pass/Clean	Pass/Clean	Pass/Clean
Syn. Sea Water		Pass/Clean	Pass/Clean	Pass/Clean
Accelerated Storage Stability		Pass	Pass	Pass
Copper Corrosion Strip 3hr @ 100°C		1A	1A	1A
RPVOT, (min)	ASTM D-130 ASTM D-2272	180-200	200-250	200-250
Dielectric Strength, KV (Avg)	ASTM D-877	47	47	46
Acid Number	ASTM D-974	0.4	0.4	0.4
Elastomer Testing BUNA-N Rubber Volume Change, %	D-471	8.0	2.0	2.0
Shore A Hardness Change	D-2240	-6	0.0	0.0

Demulsibility, ML Oil/Water/Emulsion

4-Ball Wear, 1h, 167°F, 1200 RPM, 40 kg
FZG Test A/8,3/90

Biodegradability

Ecotoxicity

Fathead minnow, 96h LC50, ppm
Daphnis magna, 48 h, EC50, ppm
Sludge respiration inhibition, EC50,
ppm

Meets EPA requirements 560/6-82-002, 560/6-82-003

Biodegradation Classification

Environmentally Friendly

USDA Biobased Tested

Environmental Management System

RLI Product

ASTM D-1401

ASTM D-4172 DIN
51354 Part 2

CEC-L33-T-82
OECD 301B Mod. Sturm
ASTM D-5864

OECD 301

ISO 15380

New Carbon
ISO 14001:1996

Item #

40/ 40/ 0

.30-.40
12

>80%
>60%
>60%

>10,000 ppm
>10,000 WAF
>10,000 ppm

Yes

Readily

Yes

yes
yes

81590

40/ 40/ 0

.30-.40
12

>80%
>60%
>60%

>10,000 ppm
>10,000 WAF
>10,000 ppm

Yes

Readily

Yes

yes
yes

81600

40/ 40/ 0

.30-.40
12

>80%
>60%
>60%

>10,000 ppm
>10,000 WAF
>10,000 ppm

Yes

Readily

Yes

yes
Yes

81610



F.O.B: Hartville, Ohio

Availability: 1 Gallon, 5 Gallon Pail, Drum, Totes, Bulk

STABILIZED™
by Renewable Lubricants