



Hydro Safe  
476 Griggy Rd., P.O. Box 474  
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# Hydro-Safe® Premium Hydraulic Fluids

## (VG-32, 46, 68)

Hydro-Safe® Premium Hydraulic Fluids are ultimately biodegradable biosynthetic lubricants that directly replace petroleum hydraulic fluids. These patented formulas are designed for high- and low-pressure systems requiring anti-wear, anti-rust, anti-oxidation, anti-foam, and demulsibility performance. Formulated with Stabilized™, they deliver superior oxidation stability, thermal shear stability, and high flash/fire safety. These fluids provide exceptional seal conditioning, extended service life, and meet stringent OEM and environmental standards, making them ideal for fleet, marine, and industrial applications.

### Benefits

- Readily biodegradable, environmentally non-toxic, not bioaccumulative
- Excellent anti-wear and oxidation performance with patented Stabilized™ HOBS
- High viscosity index ensures shear stability and thermal performance
- Low volatility increases flash and fire safety
- Passes ASTM D-665 (A&B) for rust prevention in fresh and salt water
- Compatible with petroleum-based seals and components
- Meets or exceeds major OEM specs for hydraulic and gear systems
- EPA 2013 VGP EAL compliant
- USDA Biobased Certified
- Excellent cold-start pumpability (down to -35°C)

### Application / New Filling

- Suitable for use in stationary and mobile hydraulic systems operating in harsh outdoor environments
- Compatible with equipment requiring:
  - DIN 51524 Part 2 and 3 (HLP/HVLP)
  - Parker-Denison HF-0, HF-1, HF-2
  - Eaton-Vickers M-2950-S (35VQ-25), I-286-S (V-104C)
  - Rexroth, Sauer-Sundstrand, Bosch, Commercial Intertech
  - GM LS-2, US Steel 126, 136, 127
  - MIL-PRF-17672E and Federal A-A-59354
  - API GL-1, GL-2, GL-3; AGMA Non-EP
- For fluid conversion procedures, contact Hydro-Safe® technical services

### Specifications and Approvals

- EPA VGP 2013 Compliant (EAL)



| TYPICAL SPECIFICATIONS                                                     | METHOD                                | ISO 32                         | ISO 46                         | ISO 68                         | ISO 100                        | Spec. Requirements             |
|----------------------------------------------------------------------------|---------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Specific Gravity @ 15.6°C                                                  | ASTM D-287                            | 0.88                           | 0.88                           | 0.88                           | 0.90                           | Report                         |
| Viscosity @ 40°C                                                           | ASTM D-445                            | 30.87                          | 43.8                           | 64.1                           | 92.0                           | Note 1                         |
| Viscosity @ 100°C                                                          | ASTM D-445                            | 6.9                            | 9.67                           | 12.5                           | 16.7                           | Note 1                         |
| Viscosity @ -15°C, Brookfield                                              | ASTM D-2983                           | 550 cP                         | 1100 cP                        | 3200cP                         | 4200 cP                        | Note 1                         |
| Viscosity @ -25°C, Brookfield                                              | ASTM D-2983                           | 1,200 cP                       | 3,000 cP                       | 4500 cP                        | 5400 cP                        | Note 1                         |
| Viscosity @ -30°C MRV TP1                                                  | ASTM D-4684                           | 4,500 cP                       | 8000 cP                        | 15,000 cP                      | 26,000 cP                      | 10W= <60,000                   |
| Viscosity @ -35°C MRV TP1                                                  | ASTM D-4684                           | 7,500 cP                       | 11,000 cP                      | 24,000 cP                      |                                | 5W= <60,000                    |
| Viscosity Index                                                            | ASTM D-2270                           | 184                            | 199                            | 198                            | 199                            | 90 (min)                       |
| Pour Point                                                                 | ASTM D-97                             | -40°C                          | -40°C                          | -39°C                          | -34°C                          | Note 1                         |
| Flash Point (COC)                                                          | ASTM D-92                             | 457°F/236°C                    | 469°F/243°C                    | 483°F/251°C                    | 255°C                          | 198°C (min)                    |
| Fire Point (COC)                                                           | ASTM D-92                             | 500°F/260°C                    | 514°F/268°C                    | 525°F/274°C                    | 280°C                          | 218°C (min)                    |
| Hydrolytic Stability,<br>Copper Wt. Loss (mg)                              | ASTM D-2619                           | 0.0139                         | 0.0208                         | 0.0208                         | 0.0208                         | 0.2                            |
| Copper Appearance                                                          |                                       | 1B                             | 1B                             | 1B                             | 1A                             | Report                         |
| Water Layer                                                                |                                       | 3.0                            | 3.0                            | 3.0                            | 3.6                            | 4                              |
| Foam Sequence I, II, III (10 min)                                          | ASTM D-892                            | <30/0 Foam                     | <30/0 Foam                     | <30/0 Foam                     | <30/0 Foam                     | 150/0, 80/0, 150/0             |
| Rust Prevention                                                            | ASTM D-665                            |                                |                                |                                |                                |                                |
| Distilled Water                                                            |                                       | Pass                           | Pass                           | Pass                           | Pass                           | Pass                           |
| Syn. Sea Water                                                             |                                       | Pass                           | Pass                           | Pass                           | Pass                           | Pass                           |
| Copper Corrosion Strip 3hr @ 100°C                                         | ASTM D-130                            | 1A                             | 1A                             | 1A                             | 1 A                            | DIN 51524 2(max)               |
| RPVOT, (minutes)                                                           | ASTM D-2272                           | >350                           | >350                           | >350                           | >300                           | USS 120 (min)                  |
| Dielectric Strength (KV) (Avg)                                             | ASTM D-877                            | 46                             | 40                             | 40                             | 40                             | >35                            |
| Oxidation Stability<br>(Pressure Differential Scanning Calorimeter)<br>min | ASTM D-5483<br>Modified               | 70.0 (165°C)                   | 70.0 (165°C)                   | 70.0 (165°C)                   | 70.0 (165°C)                   | Note 2                         |
| Neutralization Number mg KOH/g                                             | ASTM D-974                            | <0.4                           | <0.4                           | <0.4                           | <0.4                           | 1.5 (max)                      |
| Swell of Synthetic NBR1 Rubber, % (Avg.)                                   | DIN 53538, Part 1                     | 6.0                            | 6.0                            | 6.0                            | 8.0                            | 0 to 12                        |
| Volume Change (%)                                                          |                                       | -4                             | -4                             | -4                             | -4                             | 0 to -7                        |
| Shore A Hardness Change (%)                                                |                                       |                                |                                |                                |                                |                                |
| Filterability                                                              | Denison TP 02100                      | 113                            | 268                            | 335                            | 355                            | 600 (max)                      |
| A-No Water (s) (Avg)                                                       | HF-0 Requirement                      | 187                            | 271                            | 449                            | 470                            | 2xA (max)                      |
| B-2% Water (s) (Avg)                                                       |                                       |                                |                                |                                |                                |                                |
| Demulsibility, ML Oil/Water/Emulsion                                       | ASTM D-1401                           | 40/ 40/ 0<br>(<10 minutes)     | 40/ 40/ 0<br>(<10 minutes)     | 40/ 40/ 0<br>(<10 minutes)     | 40/40/0<br>(<10 minutes)       | 40/37/3 (max)<br>(30 minutes)  |
| 4-Ball Wear, 1h, 167°F, 1200 RPM, 40 kg                                    | ASTM D-4172                           | 0.3 – 0.4                      | 0.3 – 0.4                      | 0.3 – 0.4                      | 0.3 – 0.4                      | USS 127 0.5 (max)              |
| FZG Test A/8,3/90                                                          | DIN 51354 Part 2                      | 12                             | 12                             | 12                             | 12                             | US.Steel 10 (min)              |
| <u>Biodegradation Classification</u>                                       | ASTM D-5864<br>OECD 301B<br>ISO 15380 | Ultimate PW1<br>Readily<br>yes | Ultimate PW1<br>Readily<br>yes | Ultimate PW1<br>Readily<br>yes | Ultimate PW1<br>Readily<br>yes | Ultimate PW1<br>Readily<br>yes |
| <u>Environmentally Friendly</u>                                            |                                       |                                |                                |                                |                                |                                |
| <u>USDA Biobased Tested</u>                                                | New Carbon                            | yes                            | yes                            | yes                            | yes                            | meets/exceeds<br>(Over 50%)    |
| <u>Environmental Management System</u>                                     | ISO 14001                             | yes                            | yes                            | yes                            | yes                            | yes                            |
| <u>Ecotoxicity LC-50 / EC-50</u>                                           | EPA 560/6-82-002,<br>003              | meets/exceeds                  | meets/exceeds                  | meets/exceeds                  | meets/exceeds                  | meets/exceeds                  |
| <u>Note 1 Viscosity Sufficient for Application</u>                         |                                       |                                |                                |                                |                                |                                |
| <u>Note 2 Not Required</u>                                                 |                                       |                                |                                |                                |                                |                                |
| <b>Product Item #</b>                                                      |                                       | <b>7100-</b>                   | <b>7101-</b>                   | <b>7102-</b>                   | <b>7103-</b>                   |                                |

