

## CITGO HYDURANCE® AW FLUIDS



Date 04/18

**DESCRIPTION:** CITGO HyDurance AW Fluids are superior anti-wear hydraulic and circulating oils specially formulated to provide outstanding resistance to sludge formation, are chemically stable, and exhibit excellent anti-wear protection and filterability.

**QUALITIES:** CITGO HyDurance AW Fluids are formulated with high quality base stocks and premium additive components to offer trouble-free service in high-pressure, high-output industrial hydraulic circuits.

CITGO HyDurance AW Fluids offer:

**Thermal Stability:** Superior resistance to heat-related sludging in sensitive electro-hydraulic servos.

**Hydrolytic Stability:** Will not contribute to the formation of metal-etching acids or corrosive reactants.

**Rust and Corrosion Protection:** Inhibited against rusting in both fresh and sea water and pass both A and B Sequences of the ASTM D665 Turbine Oil Rust Test.

**Wear Protection:** Excellent antiwear protection to pumps, motors, valves, and other hydraulic circuit components. Approved against stringent equipment performance requirements.

**Anti Foam Performance:** Resistant to foaming and will not foster abnormal air entrainment in properly designed hydraulic circuits.

**Demulsibility:** Readily separate water permitting draining of contaminating water from circulating systems.

**Excellent Filterability:** Premium performance in wet and dry filterability testing.



CITGO HyDurance® AW 68 Fluid

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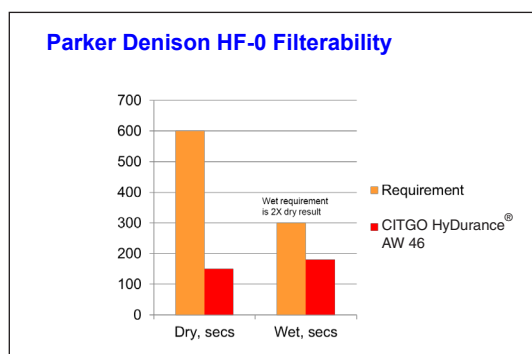
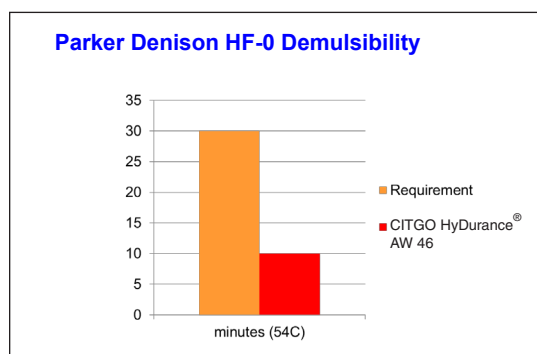
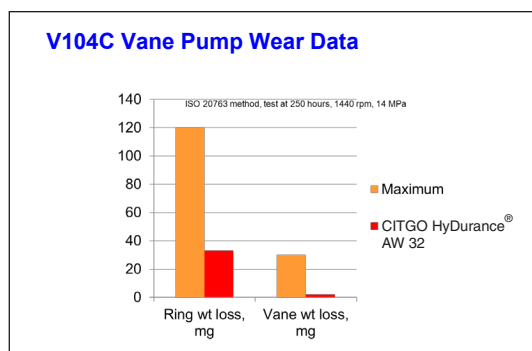
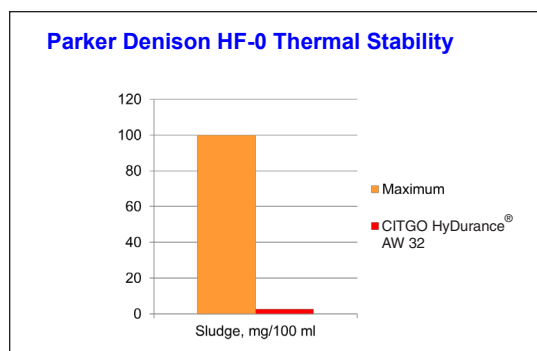
Date 04/18 - (Continued)

**APPLICATIONS:** CITGO HyDurance AW Fluids are recommended for service in industrial and mobile hydraulic systems when used in accordance with equipment manufacturers' recommendations. They are designed to provide maximum service life to vane, piston, and gear pumps as well as other circuit components such as motors and servos.

CITGO HyDurance AW Fluids are also recommended for use as a gear and bearing lubricant in industrial applications where rust and oxidation inhibited oils are required. Consult owner's manual for proper lubricant selection.

CITGO HyDurance AW Fluids meet:

- ASTM D6158 HM (2005)
- Fives Cincinnati P-68, 69, 70
- Parker Denison HF-0 (Revision J)
- DIN 51524-2 (2006)
- Eaton Brochure 03-401-2010
- General Motors LS-2 (1997)
- JCMAS HK P041 (2004)
- ISO 11158 HM (FDIS 2008)
- SEB 181 222 (2007)
- US Steel 126, 127, 136



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Date 04/18 - (Continued)

TYPICAL PROPERTIES:

CITGO HYDURANCE® AW FLUIDS

| GRADE   | 22        | 32        | 46        | 68        | 100       | 150       |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| Material Code                                 | 633606001 | 633607001 | 633608001 | 633609001 | 633610001 | 633611001 |
| Gravity, ASTM D4052, °API                     | 33.7      | 32.6      | 31.2      | 30.8      | 28.6      | 29.3      |
| Density, lb/gal                               | 7.13      | 7.18      | 7.24      | 7.26      | 7.36      | 7.33      |
| Flash Point, ASTM D92,<br>COC, °F (°C)        | 399 (204) | 417 (214) | 446 (230) | 468 (242) | 471 (244) | 500 (260) |
| Viscosity, cP at -40°C <sup>(1)</sup>         | —         | —         | —         | —         | —         | —         |
| cP at -35°C <sup>(1)</sup>                    | —         | —         | —         | —         | —         | —         |
| cP at -20°C <sup>(1)</sup>                    | —         | —         | —         | —         | —         | —         |
| cSt at 40°C                                   | 22.3      | 32.3      | 46.6      | 68        | 98        | 149       |
| cSt at 100°C                                  | 4.45      | 5.59      | 6.96      | 9.0       | 11.1      | 14.8      |
| Viscosity Index                               | 110       | 111       | 106       | 107       | 98        | 99        |
| FZG (A/8.3/90), pass load,<br>ISO 14635-1     | 12        | 12        | 12        | 12        | 12        | 12        |
| Pour Point, ASTM D97,<br>°F (°C)              | -40 (-40) | -27 (-33) | -22 (-30) | -17 (-27) | -6 (-21)  | 0 (-18)   |
| Color, ASTM D1500                             | L0.5      | L0.5      | L0.5      | L0.5      | L3.0      | L2.5      |
| Water Separability, ASTM D1401 <sup>(2)</sup> | 40-40-0   | 40-40-0   | 40-40-0   | 40-40-0   | 40-40-0   | 40-40-0   |
| Oxidation Test, ASTM D943,<br>Hrs.            | 6000      | 6000      | 6000      | 5000      | 4000      | 2850      |
| Rust Test, ASTM D665 A, B <sup>(3)</sup>      | Pass      | Pass      | Pass      | Pass      | Pass      | Pass      |
| Meets Fives Cincinnati<br>Requirement         | —         | P-68      | P-70      | P-69      | —         | —         |
| AFNOR NF E 48-603                             | HM22      | HM32      | HM46      | HM68      | HM100     | HM150     |
| ISO VG No.                                    | 22        | 32        | 46        | 68        | 100       | 150       |

**Notes:** (1) ASTM D2893 Brookfield Viscosity.

(2) 30 minutes max. separation time to ≤3ml emulsion. Test temperature is 130°F for grades up through ISO 68.

Test temperature is 180°F for ISO 100 and 150.

(3) Pass - No Rust.

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Values shown are typical values only and do not constitute a specification. The information contained herein is subject to change without notice.