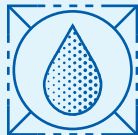




CITGO® HyDurance® AW NZ Fluids

OVERVIEW



- High-performance lubricants formulated with premium base stocks and ashless additives to provide outstanding protection for demanding hydraulic systems, especially those operating in environmentally sensitive areas.
- Zinc-free; zinc compounds are regulated as priority pollutants under provisions of the Clean Water Act and SARA Title 313.

FEATURES & BENEFITS

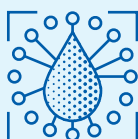


- Low acute aquatic toxicity (as shown by LC-50 test).
- Inherently biodegradable.
- Zinc-free formulation for less impact on the environment.
- Excellent thermal stability to virtually eliminate heat-related sludge deposits.
- Provide outstanding rust and corrosion protection.
- Separate readily from water.
- Contain inhibitors to minimize foaming and air entrainment.
- Provide premium anti-wear protection to pumps, motors, and other hydraulic components.
- Offer extended fluid service life capability with a fortified premium formulation to handle severe operating conditions.



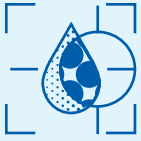
CITGO HyDurance AW
NZ 32 Fluid

APPLICATIONS



- Recommended for premium non-zinc, anti-wear protection to vane, piston, and gear pumps, motors, valves, and other hydraulic circuit components when used in accordance with manufacturer's recommendations.
- Can be used in circulating systems of machine tools, presses, air compressors, and other gear and bearing applications where rust- and oxidation-inhibited oils are required.
- Meet or exceed the stringent performance requirements of:

| | |
|----------------------|-----------------------------------|
| GM LS-02 | Fives Cincinnati P-68, P-69, P-70 |
| Eaton E-FDGN-TB002-E | U.S. Steel 127, 136, 126 |
| DIN 51524 PART 2 | Parker Denison HF-0 |
| ISO 11158 HM | AFNOR NF E 48-603 HM |
| SS 155434 | SEB 181 222 |
| ISO 6743-4 HM | |
- Can be used in applications operating in environmentally sensitive areas where the use of a zinc-free, ashless formulated fluid is desired, such as:
 - Marine – offshore rigs, tugs, dredges, hydraulic lifts, cranes, pile-drivers (note: does not meet EPA 2013 Vessel General Permit VGP EAL requirements).
 - Forestry – scalpers, excavators, wheel loaders.
 - Construction – bulldozers, graders, backhoes.
 - Mining – conveyors, crawlers, hole drillers

PROPERTIES**Typical Properties for CITGO HyDurance AW NZ Fluids:**

| Grade | 32 | 46 | 68 |
|--|-----------|-----------|-----------|
| Material Code | 633615001 | 633616001 | 633617001 |
| Gravity, ASTM D4052, °API | 32.3 | 31.2 | 31.3 |
| Density, lb/gal | 7.19 | 7.24 | 7.25 |
| Flash Point, COC, ASTM D92, °C (°F) | 215 (419) | 206 (403) | 242 (468) |
| Viscosity, ASTM D445 | | | |
| cSt at 40°C | 32 | 46 | 68 |
| cSt at 100°C | 5.5 | 6.9 | 8.5 |
| Viscosity Index, ASTM D2270 | 110 | 105 | 94 |
| Pour Point, ASTM D97, °C (°F) | -39 (-38) | -36 (33) | -24 (-11) |
| Color, ASTM D1500 | L1.0 | L1.0 | L1.5 |
| Total Acid No., ASTM D664, mgKOH/g | 0.10 | 0.5 | 0.10 |
| Copper Corrosion, ASTM D130, 3h at 100°C | 1A | 1A | 1A |
| Rust Test, ASTM D665, A and B | Pass | Pass | Pass |
| Four Ball Wear, ASTM D4172, at 40 kg, mm | 0.70 | 0.55 | 0.50 |
| Foam Test, ASTM D892, Seq. I, II, III | Pass | Pass | Pass |
| Water Separability at 54°C, ASTM D1401 | 40-40-0 | 40-40-0 | 40-40-0 |

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