



# CLARITY<sup>®</sup> HYDRAULIC OIL AW

## 32, 46, 68, 100

### PRODUCT DESCRIPTION

Clarity<sup>®</sup> Hydraulic Oils AW are designed with ashless technology to give excellent protection in mobile and stationary hydraulic vane-, piston-, and gear-type pumps in high-performance industrial applications, as well as in environmentally sensitive areas.

### CUSTOMER BENEFITS

Clarity Hydraulic Oils AW deliver value through:

- **Premium performance** — Ashless formulation meets or exceeds major vane, piston and gear pump manufacturer's requirements for viscosity, rust and corrosion protection, hydrolytic stability, water separability, foam inhibition, and filterability.
- **Exceptional oxidation stability** — Longer service life than conventional zinc-based antiwear hydraulic oils or vegetable hydraulic oils.
- **Excellent antiwear properties** — Provides excellent wear protection.
- **Low toxicity** — Inherently biodegradable<sup>1</sup> and has very low acute aquatic toxicity to both fish and invertebrates based on tests of water accommodated fractions. Ashless formulation facilitates conventional recycling programs.
- **Zinc-free/Ashless** — Suited for applications involving yellow metals found in pumps.

1. As determined by OECD 301D (Closed Bottle Biodegradability Test), Chevron Clarity Hydraulic Oil AW was shown to be inherently biodegradable. This test is normally run for 28 days. After completing this test period, Chevron Clarity Hydraulic Oil AW was 38% degraded. Degradation of 20-59% after 28 days in OECD 301D is evidence that a product is inherently biodegradable. Chevron Clarity Hydraulic Oil AW did not meet the criteria for readily biodegradable, which is degradation of  $\geq 60\%$  after 28 days in OECD 301D.

Product(s) manufactured in the USA.

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

A **Chevron** company product

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### FEATURES

Clarity Hydraulic Oils AW are formulated with premium base oil technology and an ashless ("zinc-free") additive system that provides exceptional oxidation stability, water separability, foam suppression, and protection against wear, rust and corrosion. They are designed to meet or exceed the performance requirements of conventional antiwear hydraulic oils, especially in severe, high-output applications such as axial piston pumps. The antiwear performance of these oils makes them especially suited for high performance industrial applications where pressures may exceed 5000 psi.



The zinc-free formula makes it well suited for applications involving yellow metals found in hydraulic systems.

Clarity Hydraulic Oils AW are long-life lubricants (are not vegetable oil based), with dramatically longer TOST (ASTM D943 oxidation stability test) lives than conventional zinc-based hydraulic fluids. A longer TOST life equates to longer service life, which can improve the customer's bottom line. This level of oxidation stability is especially applicable in high efficiency (high speed, high temperature, high output) applications where severe stress is placed on the hydraulic fluid.

Clarity Hydraulic Oil AW 100 is a shear-stable high VI hydraulic oil designed to improve equipment efficiency and increase operating temperature range of this grade.

Many hydraulic systems are required to operate in environmentally sensitive areas where leaks or spills of hydraulic fluid may result in contamination of the soil or nearby waterways. Conventional antiwear hydraulic oils are formulated with metal-containing performance additives which can persist in the environment in the event of leaks. Vegetable-based hydraulic oils generally meet the environmental requirements, but can fall short of the performance requirements.

**APPLICATIONS**

Clarity Hydraulic Oils AW are designed for and have shown excellent performance in applications involving:

<b>ISO Grade</b>	<b>32</b>	<b>46</b>	<b>68</b>	<b>100</b>
high performance industrial applications where pressures may exceed 5000 psi	X	X	X	
lightly loaded reciprocating compressors	X	X	X	
hydraulic equipment reduction gears where EP is not required				X
plain and antifriction bearings				X
circulating oil systems				X
applications where AGMA rust and oxidation inhibited oils are required				X

Clarity Hydraulic Oils AW are not compatible with zinc/calcium containing fluids, and OEM recommended lubricant change-out procedures including drain and flush requirements need to be adhered to.

Do not use in high pressure systems in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

## CLAIMS AND SPECIFICATIONS

ISO Grade	32	46	68	100
Blohm+Voss	M	M	M	<b>A</b>
Eaton (Vickers) 35VQ25A (Pump Test) I-286-S (Stationary) M-2950-S (Mobile)	M	M	M	
Fives Cincinnati (formerly MAG <sup>a</sup> Cincinnati, Cincinnati Machine, Cincinnati Milacron)	M p-68	M p-70	M p-69	
Hitachi/John Deere Construction JCMAS HK VG 32, 46	M	M		
Krauss-Maffei Kunststofftechnik		M		
NSF H2 <sup>b</sup>	<b>A</b>	<b>A</b>	<b>A</b>	
Parker Hannifin (Denison) HF-0, HF-1, HF-2, T6H20C	M	M	M	
Voith 3625-006058	<b>A</b>	<b>A</b>	<b>A</b>	
Wärtsilä-Japan				<b>A</b>
ZF TE-ML 04K	M	M		
ASTM D6158 HM	M	M	M	M
ASTM D6158 HV				M
DIN 51524-2 HLP	M	M	M	M
DIN 51524-3 HVLP				M
ISO 11158 L-HM	M	M	M	M
ISO 11158 L-HV				M

a Obsolete specification

b Clarity Hydraulic Oils AW (ISO 32, 46, 68) are registered by **NSF** and are acceptable as lubricants where there is no possibility of food contact (H2) in and around food processing areas. The NSF Nonfood Compounds Registration Program is a continuation of the USDA product approval and listing program, which is based on meeting regulatory requirements of appropriate use, ingredient review and labeling verification.

**A:** Approved for

**M:** Meets or exceeds requirements

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**TYPICAL TEST DATA**

ISO Grade	Test Method	32	46	68	100
Product Number		230342	230341	230340	255702
SDS Number U.S. Mexico Colombia		6691 6691MEX 32531	6691 6691MEX 32531	6691 6691MEX 32531	6691 6691MEX 32531
API Gravity	ASTM D287	33.3	31.9	31.6	32.5
Density at 15°C, kg/L	ASTM D4057	0.8581	0.8654	0.8670	0.8623
Viscosity, Kinematic cSt at 40°C cSt at 100°C	ASTM D445	33.5 5.6	46.1 6.8	67.8 8.5	92.8 13.9
Viscosity, Saybolt SUS at 100°F SUS at 210°F	ASTM D2161	155 45.0	237 49.0	334 54.8	486 74.6
Viscosity Index		105	101	95	153
Flash Point, °C(°F)	ASTM D92	222(432)	224(435)	224(435)	266(511)
Pour Point, °C(°F)	ASTM D97	-38(-36)	-36(-33)	-32(-26)	-35(-31)
Copper Corrosion 3h at 100°C	ASTM D130	1b	1b	1b	1b
Foam Test, Seq. I Tendency, mL Stability, mL	ASTM D892	10 0	20 0	50 0	30 0
Rust Test, Procedure A & B	ASTM D665	Pass	Pass	Pass	Pass
Water Separability, minutes to <3mL at 54°C	ASTM D1401	10	10	10	—
Water Separability, minutes to <3mL at 82°C	ASTM D1401	—	—	—	10
Oxidation Stability, TOST Hours to 2.0 mg KOH/g acid number	ASTM D943 <sup>a</sup>	> 10,000	> 10,000	> 10,000	> 5,000
FZG Gear Test, Fail Load Stage	DIN 51354	12	≥12	≥12	12
Acute Aquatic Toxicity (LC-50)	OECD 203	Pass	Pass	Pass	Pass

a Modified ASTM D943, allowed to run beyond 10,000 h.

Minor variations in product typical test data are to be expected in normal manufacturing.

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