CLARITY® AW
32, 46, 68

PRODUCT DESCRIPTION

Clarity® AW oils are high-performance ashless anti-wear hydraulic fluids designed to meet the stringent demands of modern OEM designs, where increased performance is required. They give maximum protection in both mobile and stationary hydraulic equipment applications.

CUSTOMER BENEFITS

Clarity AW oils deliver value through:

- **Premium performance** - Ashless formulation meets or exceeds major vane, piston and gear pump manufacturer's requirements providing excellent protection of hydraulic systems against wear, rust and corrosion along with exceptional hydrolytic stability, water separability, and filterability for smooth equipment operation.
- **Outstanding oxidation and thermal stability** - Longer service life than conventional zinc-based antiwear hydraulic oils. High thermal stability results in lower system sludge and varnish formation.
- **Excellent air release and foam control** - Ensures low air content in hydraulic fluid for improved equipment responsiveness.
- **Low toxicity** - Zinc-free formula is inherently biodegradable[1] 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.

FEATURES

Clarity AW oils 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 AW oils 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.

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.

1 Inherently biodegradable by OECD 301D testing and guidelines in EPA 800-R-11-002, November 2011 evaluations for a similar product. Product is not considered readily biodegradable. Clarity Bio EliteSyn AW should be used if a readily biodegradable EAL fluid is required.

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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IO-25

APPLICATIONS

Clarity AW oils are designed to meet the stringent demands of modern OEM designs, where increased performance of the hydraulic oil is required. They have demonstrated excellent performance in hydraulic systems using vane-, piston-, and gear-type pumps in mobile and stationary equipment. They are designed to provide protection in high performance hydraulic applications where pressures may exceed 5000 psi. These oils are recommended for use in plastic injection molding where OEMs require a fluid meeting DIN 51524 or equivalent industry performance standards. They are also suitable for use in lightly loaded reciprocating compressors.

Clarity AW oils are compatible with seal materials commonly found in most hydraulic systems, including nitrile and flouro elastomers (NBR and FKM).

CLAIMS AND SPECIFICATIONS

	32	46	68
Parker Hannifin (Dennison) HF-0, HF-1, HF-2	**A**	**A**	**A**
Eaton (Vickers) E-FDGN-TB002-E	**A**	**A**	**A**
Fives Cincinnati[a] (formerly MAG 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[b]	**A**	**A**	**A**
US Steel (AIST) 126, 127	M	M	M
ASTM D6158 HM	M	M	M
DIN 51524-2 HLP	M	M	M
ISO 11158 L-HM	M	M	M
SAE MS1004-HM	M	M	M

a Obsolete specification

b Clarity 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 or listed M: Meets or exceeds requirements

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.

TYPICAL TEST DATA

ISO Grade	Test Method	32	46	68
Product Number		*230344*	*230345*	*230346*
SDS Number *U.S.* *Canada* *Mexico*		 *65294* *65295* *65296*	 *65297* *65298* *65299*	 *65300* *65301* *65302*
API Gravity	ASTM D287	33.8	32.1	31.7
Density at 15°C, kg/l	ASTM D4057	0.856	0.865	0.867
Viscosity, Kinematic mm^2/s at 40°C mm^2/s at 100°C	ASTM D445	 32.1 5.6	 46.8 7.0	 68.7 9.1
Viscosity Index	ASTM D2770	115	107	108
Flash Point, °C(°F)	ASTM D92	227	238	248
Pour Point, °C(°F)	ASTM D97	-40	-38	-35
Copper Corrosion 3hr at 100°C	ASTM D130	1a	1a	1a
Foam Test, Seq. I Tendency, mL Stability, mL	ASTM D892	 30 0	 10 0	 10 0
Rust Test, Procedure A & B	ASTM D665	Pass	Pass	Pass
Water Separability, minutes to <3mL at 54°C	ASTM D1401	15	15	15
Oxidation Stability, TOST Hours to 2.0 mg KOH/g acid number	ASTM D943	>10,000	>10,000	>10,000
FZG Gear Test, Fail Load Stage	DIN 51354	12	12	12
Acute Aquatic Toxicity (LC-50)	OECD 203	Pass	Pass	Pass

The results expressed above were obtained during the development of this product and are considered representative of (any/all) commercial samples.

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