Clarity AW

High performance hydraulic oil

Product description

Clarity AW is a range of high performance ashless anti-wear monograde hydraulic oils, designed to meet the stringent demands of modern OEM designs, where increased performance of the hydraulic oil is required. Clarity AW hydraulic oils help provide protection to both mobile and stationary hydraulic equipment applications. They are also suitable for environmentally sensitive areas, as they avoid the persistent metal-containing additives found in conventional oils, while outperforming vegetable-based hydraulic oils in demanding applications.

Clarity AW is formulated with premium base oil technology in combination with a premium zinc- free and ash-free additive system, to contribute to advanced oxidation stability, water separation, and foam suppression and help provide effective wear, rust, and corrosion protection. These oils are ideal for severe, high-output applications, such as axial piston pumps, and are especially suited for high-pressure industrial uses exceeding 5000 psi. The zinc-free formula is compatible with yellow metals in hydraulic systems.

Clarity AW oils have significantly longer service lives compared to conventional zinc-based hydraulic fluids, thanks to their extended TOST (ASTM D943) lives. This makes them cost-effective by reducing the frequency of oil changes.

Clarity AW replaces Clarity Hydraulic Oil AW 32, 46, 68

Product highlights

- **Ashless formulation helps to protect against wear, rust, and corrosion while maintaining hydrolytic stability, water separability, and filterability.**
- **High thermal stability helps minimise sludge and varnish for improved system reliability.**
- **Low air content in the hydraulic fluid offers smooth and efficient equipment operation.**
- **Zinc-free, inherently biodegradable[1] formulation with very low aquatic toxicity supports safer disposal.**

Selected specification standards include:

ASTM	DIN
Eaton	Fives Cincinati
Hitachi/John Deere Construction	ISO
JCMAS (Japan Construction Mechanization Association)	Krauss-Maffei Kunststofftechnik
NSF	Parker Hannifin (Dennison)
Siemens Energy	SS (Swedish Standard)

Customer benefits

- Designed with an ashless formulation that meets or exceeds major vane, piston, and gear pump manufacturer requirements, offering good protection against wear, rust, and corrosion while helping to maintain hydrolytic stability, water separability, and filterability for smooth equipment operation.
- Offers longer service life compared to conventional zinc-based anti-wear hydraulic oils. High thermal stability helps minimise system sludge and varnish formation for improved performance.
- Designed to offer low air content in the hydraulic fluid, improving equipment responsiveness and efficiency.
- The zinc-free, ashless formulation is inherently biodegradable[1] and exhibits very low acute aquatic toxicity to fish and invertebrates based on water accommodated fraction tests, aiding safer disposal in conventional recycling programs.

Applications

Clarity AW hydraulic oils are designed for excellent performance in applications involving:

ISO Grade	32	46	68
Mobile and stationary hydraulic vane-, piston-, and gear-type pumps	X	X	X
High performance industrial applications where pressures may exceed 5000 psi	X	X	X
Servo-valves using multi-metal components	X	X	X

Clarity AW is designed for environmentally sensitive applications, including:

- Marine
- Agriculture
- Forestry
- Mining
- Construction

Clarity AW is highly recommended for high pressure systems:

- Injection moulding
- Mobile equipment

Clarity AW 46 is approved and listed on Siemens Energy's list for fuel valves actuator hydraulic oils.

Please contact the equipment manufacturer (OEM) if equipment is operating outside normal operation conditions.

Compatibility testing should be conducted if Clarity AW is used to top up an existing system.

Standard recommendation is to always drain and flush the system.

Approvals, performance and suitable for use

Approvals and performance			
ISO Grade	**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	-
Siemens Energy Std 3.1-0251-9000		A	
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: Approved for
M: Performance: Meets or exceeds requirements

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.

Product maintenance and handling

Clarity AW is 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 use in high pressure systems in the vicinity of flames, sparks, and hot surfaces. Use only in well ventilated areas. Keep container closed.

Avoid any spillage of used and unused product to the environment.

Product residue and package/container should be disposed of in dedicated collection points.

Typical test data

Test	Test Methods	Results		
Viscosity Grade		**32**	**46**	**68**
Typical Shelf Life: 60 months from date of filling indicated on the product label.				
Appearance	Visual	Bright & Clear	Bright & Clear	Bright & Clear
Color	ASTM D1500	L0.5	L0.5	L0.5
Density at 15°C, kg/l	ASTM D4052	0.869	0.871	0.865
Kinematic viscosity at 100°C, mm^2/s	ASTM D445	5.6	7.0	9.1
Kinematic viscosity at 40°C, mm^2/s	ASTM D445	32.01	46.4	68.2
Kinematic viscosity at 0°C, mm^2/s	ASTM D445	319	537	929
Viscosity Index	ASTM D2270	113	109	108
Pour point, °C	ASTM D97	-39	-33	-27
Flash point COC, °C	ASTM D92	226	228	248
Foam Seq I, foam tendency/stability ml	ASTM D892	20/0	20/0	20/0
Foam Seq II, foam tendency/stability ml	ASTM D892	50/0	50/0	50/0
Foam Seq III, foam tendency/stability ml	ASTM D892	50/0	50/0	50/0
Water separation, oil/water/emulsion, min		40-39-01 (15)	40-39-01 (20)	40-38-02 (30)
Air release at 50°C, min		1.6	2.8	7.5

The typical test data set out above does not constitute a specification. It is indicative only and can be affected by allowable production tolerances. Chevron may modify this test data. Modified data will supersede all previous data, so please ensure you refer to the latest version of this Product Data Sheet (PDS).

[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.