



# Clarity Bio Elitesyn AW

## High VI Ashless Biodegradable hydraulic oil

### Product description

Clarity Bio EliteSyn™ AW oils are synthetic renewable, readily biodegradable, high performance hydraulic fluids. They are formulated with ashless technology to help provide protection in mobile and stationary hydraulic equipment used in industrial and marine applications, including environmentally sensitive areas.

Clarity Bio EliteSyn AW oils are formulated to meet the requirements of the EPA Vessel General Permit (VGP) for biodegradation, low toxicity, and low bioaccumulation, and are EU Eco-label approved.

### Customer benefits

- Meets the requirements of the EPA Vessel General Permit (VGP) for biodegradation, low toxicity and low bioaccumulation to fish and invertebrates and has the Eco-label approval.
- Suitable for applications involving yellow metals found in axial piston pumps.
- Ashless formulation helps provide good protection against wear of hydraulic pumps, rust and corrosion, hydrolytic stability, water separability, foam inhibition, air release, filterability and seal compatibility.
- Formulated with a synthetic base stock to help withstand oxidation at high operating temperatures, resulting in extended service life for the oil relative to vegetable-based, readily biodegradable products.
- Specifically developed to help provide good low temperature fluidity for low temperature operations.

### Product highlights

- **Environmentally acceptable**
- **Zinc-free**
- **Good performance**
- **Long oil life**
- **Very good low temperature pumpability**

#### Selected specification standards include:

AEGIR	ASTM
Danfoss / Eaton	EU Ecolabel
ISO	JCMAS
Kobelco Eagle	Parker Hannifin
Swedish Standard	USDA

### Applications

Clarity Bio EliteSyn AW oils are USDA Certified Biobased<sup>1</sup> and Eco-label approved and made with more than 85% renewable synthetic base stock.



These high-performance synthetic lubricants utilise sustainably sourced renewable plant-based feedstocks to produce hydrocarbon molecules that do not have any of the impurities found in traditional base oils derived from crude petroleum.

They are readily biodegradable, non-bio accumulative, and minimally toxic<sup>2</sup>. In the event of a spill, the product biodegrades by more than 60% within 28 days, minimising the impact to the environment.

These oils are designed to the performance requirements of conventional anti-wear hydraulic oils, while providing an additional benefit in case of leaks or incidental discharge to the environment and are approved for use by leading marine stern tube manufacturers.

They give maximum protection in hydraulic equipment used in vessels and in both mobile and stationary hydraulic pumps in high-performance industrial applications.

Clarity Bio EliteSyn™ AW hydraulic oils are designed for very good performance in applications involving:

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

<sup>1</sup> The USDA Certified Biobased Product label is a certification mark of the U.S. Department of Agriculture.

<sup>2</sup> ISO 15380 and European Eco-label, specify the requirements for environmentally acceptable hydraulic fluids, including biodegradability, bio accumulative potential and toxicity.

### Product maintenance and handling

Clarity Bio EliteSyn AW oils are compatible with nitrile (NBR) and fluoro (FKM) rubber seal materials used in most hydraulic and stern tube systems. Clarity Bio EliteSyn AW hydraulic oils are miscible with common mineral based hydraulic oils; however, they are not compatible with zinc/calcium containing fluids.

Follow good practices, OEM recommended lubricant change-out procedures, including drain and flush requirements, to avoid risk of additive incompatibility and ensure that the full performance benefits are achieved.

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

Please consult with the original equipment manufacturer (OEM) if equipment is operating outside normal operation conditions. 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.

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

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

## Approvals, performance and suitable for use

ISO Grade	32	46	68
Parker Hannifin (Dennison) HF-1, HF-6	A	A	A
Danfoss/Eaton E-FDGN-TB002-E	A	A	A
EU Ecolabel BE/027/006	A	A	A
Swedish Standard SS 155434 (listed at RI.SE)	A	A	A
Kobelco Eagle (KEMEL)			A
AEGIR Marine			A
USDA BioPreferred® Program	A	A	A
2013 VGP Compliant (water interfacing) ASTM D8324-21	M	M	M
ISO 15380 Class HEPR	M	M	M
ASTM D6158 HV	M	M	M
DIN 51524/3 HVLP	M	M	M
ISO 11158 L-HV	M	M	M
JCMAS HK	M	M	M

A: Approved for

M: Performance: Meets or exceeds requirements

## Clarity Bio Elitesyn AW — Continued

Typical test data				
Test	Test Methods	Results		
Typical Shelf Life: 60 months from date of filling indicated on the product label				
Viscosity Grade		32	46	68
Appearance	Visual	B&C	B&C	B&C
Density at 15°C, kg/l	ASTM D4052	0.8223	0.8263	0.8262
Kinematic viscosity at 40°C, mm²/s	ASTM D445	31.8	46	68
Kinematic viscosity at 100°C, mm²/s	ASTM D445	>6.0	>7.8	>10.4
Viscosity Index	ASTM D2270	160	160	160
Brookfield, -20°C, cP	B-ASTM D2983	1020	1430	2330
Brookfield, -30°C, cP	B-ASTM D2983	2410	4730	7250
Pour point, °C, max	ASTM D97	-46	-35	-41
Flash point, COC, °C	ASTM D92	235	252	237
TAN, mgKOH/g	ASTM D974	0.8	0.8	0.8
Rust A, 24hr @60°C	ASTM D665A	pass	pass	pass
Rust B, 24hr @60°C	ASTM D665B	pass	Pass	pass
Copper corrosion, 3hr@100°C, max	ISO 2160	1B	1A	1A
Foam Seq I @ 24°C, ml/ml	ASTM D892	50/0	50/0	50/0
Foam Seq II @ 93°C, ml/ml	ASTM D892	10/0	20/0	30/0
Foam Seq III @ 24°C, ml/ml	ASTM D892	10/0	40/0	20/0
Air release @ 50°C, min, max	ASTM D3427	2.95	2.18	6.38
FZG (A/8.3/90), FLS	ASTM D5182	12	>12	>12
TOST, hrs Hours to 2.0 mg KOH/g TAN	ASTM D943	>10000	>10000	>10000
Biodegradability; 28 days, %	ISO 14593 or ISO 9439	>60	>60	>60
EC50 (algal growth inhibition or marine algal growth inhibition), mg/l	OECD 201	>100	>100	>100
Bacterial inhibition, 3h, EC 50, mg/l	ISO 8192	>100	>100	>100
EC50(Daphnia or copepods),48 h, mg/l	OECD 202 ISO 6341	>100	>100	>100
LC50 (fish), 96 h, %m/m	OECD 203 ISO 7346-2	>100	>100	>100

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.

**Disclaimer: Data provided in this Product Data Sheet (PDS) is based on standard tests under laboratory conditions and is indicative only. This product should not be used for any purpose other than those expressly set out in this PDS. The user has sole responsibility for verifying that this product is suitable for the user's intended application. Neither Chevron nor its subsidiaries (i) make any warranty or representation as to the accuracy or completeness of this PDS; and/or (ii) accept liability for any loss or damage suffered as a result of the use of this product other than in accordance with the terms of this PDS.**

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.

When disposing of used product, take care to protect the environment and follow local legislation.

Safety Data Sheets (SDS's) are available for all Chevron products. If you require a SDS or any further information regarding a Chevron product, please contact your local sales office or see <http://europe.chevronlubricants.com>.

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