



CLARITY[®] BIO ELITESYN[™] AW 32, 46, 68

PRODUCT DESCRIPTION

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



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

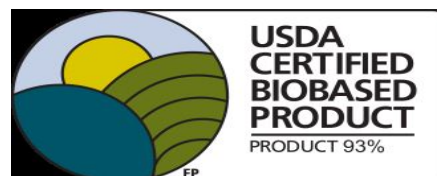
CUSTOMER BENEFITS

Clarity Bio EliteSyn AW delivers value through:

- **Environmentally acceptable** — Meets the requirements of the EPA Vessel General Permit (VGP) for biodegradation, low toxicity and low bioaccumulation to fish and invertebrates.
- **Zinc-free** — Suitable for applications involving yellow metals found in axial piston pumps.
- **Excellent performance** — Ashless formulation provides excellent protection against wear of hydraulic pumps, provides rust and corrosion protection, hydrolytic stability, water separability, foam inhibition, air release, filterability and seal compatibility.
- **Outstanding oil life** — Outstanding ability of the synthetic base stock to withstand oxidation at high operating temperatures results in maximum service life for the oil relative to vegetable-based, readily biodegradable products.
- **Excellent low temperature pumpability** — Specifically developed to ensure good low temperature fluidity for low temperature operations.

FEATURES

Clarity Bio EliteSyn AW oils are USDA Certified Biobased¹ and made



with more than 85% renewable synthetic base stock. These high-performance synthetic lubricants utilize 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-bioaccumulative, and minimally toxic. In the event of a spill, the product biodegrades by more than 60% within 28 days, minimizing the impact to the environment.

These oils are designed to the performance requirements of conventional antiwear 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 oils are formulated with synthetic base stock and an ashless, zinc-free additive system that provides exceptional oxidation stability, water separability, foam suppression, and protection against wear, rust and corrosion.

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

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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The high VI synthetic base stock allows for operation over a wide temperature range and provides excellent low temperature pumpability.

Clarity® Bio EliteSyn™ 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
Stern tube applications			X

CLAIMS AND SPECIFICATIONS

	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	A	A	A
Kobelco Eagle (KEMEL)	-	-	A
AEGIR Marine	-	-	A
USDA BioPreferred® Program^a	A	A	A
ASTM D8324-21 2013 VGP Compliant (water interfacing)	M	M	M
Fives Cincinnati^b (formerly MAG Cincinnati, Cincinnati Machine, Cincinnati Milacron)	M P-68	M P-70	M P-69
JCMAS HK VG 32, 46	M	M	-
ASTM D6158 HV	M	M	M
DIN 51524/3 HVL P	M	M	M
ISO 11158 L-HV	M	M	M
ISO 15380 Class HEPR	M	M	M

a BioPreferred is a trademark of the U.S. Department of Agriculture. Visit <https://www.biopreferred.gov>.

b Obsolete specification

A: Approved for or listed

M: Meets or exceeds requirements

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.

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.

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.

TYPICAL TEST DATA

ISO Grade	Test Method	32	46	68
<i>Product Number</i>		223010	223011	223012
<i>SDS Number</i>				
<i>U.S.</i>		57770	57762	57757
<i>Canada</i>		58449	58452	58467
<i>Mexico</i>		58450	58453	58469
<i>Colombia</i>		58451	58454	58468
API Gravity		40.6	39.7	39.7
Density at 15°C, kg/l	ASTM D4052	0.8223	0.8263	0.8262
Viscosity, Kinematic mm ² /s at 40°C mm ² /s at 100°C	ASTM D445	31.8 6.5	46 8.2	68 11.9
Viscosity, Saybolt SUS at 100°F SUS at 210°F	ASTM D2161	161 47.9	212 53.7	340 67.1
Viscosity Index	ASTM D2770	164	165	175
Flash Point, °C(°F)	ASTM D92	235(455)	252(486)	237(459)
Pour Point, °C(°F)	ASTM D97	-46(-51)	-35(-31)	-41(-42)
Brookfield Viscosity cP at -20°C cP at -30°C	ASTM 2983	1020 2410	1430 4730	2330 7250
Air release at 50°C, minutes	ASTM D3427	2.95	2.18	6.38
Copper Corrosion 3hr at 100°C	ASTM D130	1b	1a	1a
Rust Test, Procedure A & B	ASTM D665	Pass	Pass	Pass
Oxidation Stability, TOST Hours to 2.0 mg KOH/g TAN	ASTM D943	>10,000	>10,000	>10,000
FZG (A/8.3/90), Fail Load Stage	DIN 5182	12	>12	>12
Biodegradability, % in 28 days	OECD 301B	>60	>60	>60
Ecotoxicity				
Algae, 72 h, EC-50, mg/L	OECD 201	>100	>100	>100
Daphnia magna, 48 h, EC-50, mg/L	OECD 202	>100	>100	>100
Fathead minnow, 96 h, LC-50, mg/L	OECD 203	>100	>100	>100

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

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