CLARITY® SYNTHETIC EA HYDRAULIC OIL

46, 68, 100

PRODUCT DESCRIPTION

Clarity® Synthetic EA Hydraulic Oils are readily biodegradable high performance hydraulic oils that meet EPA Vessel General Permit (VGP) requirements for environmentally acceptable lubricants. They are designed to give maximum protection in hydraulic equipment used on vessels and in environmentally sensitive areas.

CUSTOMER BENEFITS

Clarity Synthetic EA Hydraulic Oils deliver value through:

- **Environmentally acceptable** — Meets the requirements of the EPA Vessel General Permit (VGP) for biodegradation, low toxicity and low bioaccumulation.
- **Premium performance** — Ashless formulation provides excellent protection against wear of hydraulic pumps, provides rust and corrosion protection, hydrolytic stability, water separability, foam inhibition, and filterability.
- **Long 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 with high viscosity index to ensure good low temperature fluidity for low temperature operations.
- **Zinc-free** — Suited for applications involving yellow metals found in axial piston pumps.

FEATURES

These lubricants 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.

Clarity Synthetic EA Hydraulic Oils are designed to give maximum protection in hydraulic equipment used in vessels and in both mobile and stationary hydraulic pumps in high-performance industrial applications.

Clarity Synthetic EA Hydraulic Oils are formulated with synthetic base stock and an ashless, zinc-free additive system that provide exceptional oxidation stability, water separability, foam suppression, and protection against wear, rust and corrosion.

Clarity Synthetic EA Hydraulic Oils are high VI synthetic products which allow for operation over a wide temperature range.

Clarity Synthetic EA Hydraulic 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.

Clarity Synthetic EA Hydraulic Oils ISO 68 and 100 are recommended for use in marine stern tube applications.

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

26 February 2018
IO-28

© 2014-2018 Chevron U.S.A. Inc. All rights reserved.
Chevron, the Chevron Hallmark and Clarity are trademarks owned by Chevron Intellectual Property LLC. All other trademarks are property of their respective owners.

APPLICATIONS

Clarity® Synthetic EA Hydraulic Oils[1] are designed to give maximum protection in hydraulic equipment used on vessels and in environmentally sensitive areas. They are used in hydraulic systems as recommended by ISO 15380, HEPR in mobile and stationary hydraulic vane-, piston-, and gear-type pumps.

Clarity Synthetic EA Hydraulic Oils meet the requirements of:

- **DIN** 51524-3 (ISO 46, 68)
- **ISO** 15380 HEPR
- **Parker-Denison** (ISO 46, 68)

1 Chevron Clarity EA Hydraulic Oils are rebrands of Terresolve Technologies, Ltd. products as follows:

Chevron	Terresolve Technologies
Clarity® Synthetic EA Hydraulic Oil 46	ENVIROLOGIC® 3046
Clarity® Synthetic EA Hydraulic Oil 68	ENVIROLOGIC® 3068
Clarity® Synthetic EA Hydraulic Oil 100	ENVIROLOGIC® 3100

ENVIROLOGIC® is a trademark owned by Terresolve Technologies, Ltd. DBA RSC Bio Solutions and is used with permission.

Clarity Synthetic EA Hydraulic Oil 68 and 100 are approved for Stern tube applications by:

- **Blohm+Voss**
- **KEMEL COMPANY**
- **Wärtsilä**

Clarity Synthetic EA Hydraulic oils are miscible with common mineral based hydraulic oils, however, following good practice, in-service oils should be completely drained to avoid any risk of additive incompatibility and ensure that the full performance benefits are achieved.

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.

TYPICAL TEST DATA

ISO Grade	46	68	100
Product Number	*223063*	*223064*	*223065*
SDS Number	*35647*	*35647*	*35647*
API Gravity	34.2	33.8	33.0
Viscosity, Kinematic cSt at 40°C cSt at 100°C	 46.0 9.0	 68.0 11.7	 100.0 18.8
Viscosity, Saybolt SUS at 100°F SUS at 210°F	 214 55.8	 316 65.3	 504 95.3
Viscosity Index	180	170	210
Flash Point, °C(°F)	221(430)	215(419)	193(379)
Pour Point, °C(°F)	-51(-60)	-48(-54)	-48(-54)
Brookfield Viscosity, ASTM D2983, cP at -30°C	—	5100	7500
Copper Corrosion, ASTM D130	1b	1b	1b
Rust Test, ASTM D665B Synthetic Sea water	Pass	Pass	Pass
Oxidation Stability-RPVOT ASTM D2272, minutes	400-500	400-500	400-500
FZG, Fail Load Stage	12	12	12
Eaton-Vickers 35VQ25 pump, Eaton-Vickers 104C pump (250 hours)	Pass Pass	Pass Pass	Pass Pass
Seal Compatibility with Buna-N, Viton, Polyurethane	Pass	Pass	Pass
Biodegradability OECD 301B, % in 28 days	>60	>60	>60
Ecotoxicity Fathead minnow, 96 h, LC-50, OECD 203, mg/L Daphnia magna, 48 h, EC-50, OECD 202, mg/L Algae, 72 h, EC-50, OECD 201, mg/L	 >10,000 >120 >10,000	 >10,000 >120 >10,000	 >10,000 >120 >10,000
Bioaccumulation	Negative	Negative	Negative

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

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.