



# Clarity Bio EliteSyn ES 46

Premium performance, palm oil free,  
biodegradable hydraulic oil

## Product description

Clarity Bio EliteSyn ES 46 is a premium performance palm oil-free hydraulic fluid, designed for use in environmentally sensitive applications.

Based on fully biodegradable unsaturated ester and zinc-free additive technology, Clarity Bio Elitesyn ES 46 helps to deliver excellent oxidation stability, corrosion protection, extreme pressure (EP) and low-temp performance.

## Customer benefits

- Palm oil-free formulation designed for environmentally sensitive applications where contamination may occur.
- Advanced environmentally focused additive package offers good oxidation stability, and corrosion protection.
- Engineered to provide robust protection in extreme pressure (EP) and wide operating temperature range applications (-30°C up to 90°C).
- Meets a range of environmentally focused standards including OECD 301B: >60, Swedish Standard SS 15 54 34, and WGK 1 rating according to the German WGK Classification.
- Hydraulic oil that meets EPA Vessel General Permit (VGP 2013) requirements for Environmentally Acceptable Lubricants (EALs).

## Product highlights

- **Palm oil free formulation designed for sensitive environments**
- **Eco-friendly additives offer oxidation stability, corrosion protection**
- **Engineered for robust protection in extreme pressures and temperatures**
- **Meets OECD 301B, Swedish SS 15 54 34, WGK 1**
- **Meets EPA VGP 2013 requirements for EALs**

**Selected specification standards include:**

DIN	Eco-label
ISO	Swedish-Standard
VDMA	VGP/VIDA

## Applications

Clarity Bio EliteSyn ES 46 is suited for all stationary and mobile hydraulic systems as recommended by ISO 15380, HEES.

Product should be used where there is a danger to soil or water pollution.

Typical applications are mobile hydraulics in drainage areas and road construction, forestry and timber industry, vehicles for ski racing track maintenance, municipal vehicles and facilities, auto hoist, hydraulic engineering, forklift, horticulture and landscaping, sewage plant, freshwater recovery, floater dredgers, sluices, water maintenance boats, tunnelling machines, offshore equipment, concrete pumps, track laying machines, etc.

### **Seal compatibility:**

Seal Compatibility with Fluor elastomers (FPM/KKM) such as Viton.

In accordance with ISO 15380, it is recommended to test a variety of seals, including AU, NBR1, HNBR/1, and FKM2. These materials serve as reference standards and may differ from commercially available seal materials. It is essential to consider the applicability of the elastomer's behavior in practical use. In cases of uncertainty, compatibility testing is advised. Test conditions should be tailored to the specific application.

## Approvals, performance and suitable for use

	ISO 46
Swedish-Standard 15 54 34 (listed at RISE)	A
EU Ecolabel DE/027/336	A
ISO 15380 - HEES	M
VDMA 24568 - HEES	M
ISO 12922 - HFDU	M
DIN 51502-6: HE ES46	M
2013 VGP Compliant (water interfacing) ASTM D8324-21	M

A: Approved for

M: Performance: Meets or exceeds requirements



## Product maintenance and handling

Always take an oil sample to evaluate the condition of the system.

When changing over to Clarity Bio Elitesyn ES 46, the guidelines for changing fluids from mineral-based oils to environmentally acceptable fluids according to DIN ISO 15380 (HEES) has to be followed.

Check with OEMS for specific change over procedures.

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

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

## Clarity Bio EliteSyn ES 46 – Continued

Typical test data		
Test	Test Methods	Results
<b>Viscosity Grade</b>		<b>46</b>
<b>Typical Shelf Life: 24 months from date of filling indicated on the product label.</b>		
Appearance	Visual	Clear and bright
Colour	ISO 2049	1.0
Content of carbon of biological origin, min, %	ASTM D6866	60
Kinematic Viscosity at -30°C, mm <sup>2</sup> /s	ISO 3107	7026
Kinematic Viscosity at -20°C, mm <sup>2</sup> /s	ISO 3104	1411
Kinematic Viscosity at 0°C, mm <sup>2</sup> /s	ISO 3104	312.8
Kinematic Viscosity at 40°C, mm <sup>2</sup> /s	ISO 3104	45.39
Kinematic Viscosity at 100°C, mm <sup>2</sup> /s	ISO 3104	9.319
VI	ISO 2909	194
Density at 15°C, kg/l	ISO 12185	0.9193
Pour Point, °C	ISO 3016	-51
Flash Point, °C	ISO 2592	306
Fire Point, °C	ISO 2592	>300
TAN, mg KOH/g	DIN ISO 6618	1.10
Foam Seq (I, II, III), ml	ISO 6247	0/0
Air release @ 50°C, min	ISO 9120	2min 46s
Water separation, time to 3ml emulsion at 54°C, min	ISO 6614	30 min/37 ml H <sub>2</sub> O
Water content, ppm	KF	201
Rust prevention, 24h, proc A & B	ISO 7120	Pass
Copper Corrosion 100°C, 3hr, rating	ISO 2160	1B
Iodine Number, g I <sub>2</sub> /100g	ISO 3961 DIN EN 14111	90.39

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).

**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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