



High performance biodegradable lubricant for enclosed gears.

## APPLICATIONS

Environmentally Acceptable Lubricant (EAL) as per the US 2013 Vessel General Permit (VGP).

**CARTER BIO** is designed to replace mineral gear oils for enclosed gears and bearing lubrication.

## FEATURES AND BENEFITS

**CARTER BIO** is designed for use when incidental spillage in environmentally sensitive areas may occur.

**CARTER BIO** has very good extreme pressure properties and a high scuffing load capacity ensuring good protection of gears operating under high load.

**CARTER BIO** ensures a high corrosion protection, confirmed with sea water contamination.

## SPECIFICATIONS AND APPROVALS

✓	US Vessel General Permit Compliant	✓	WÄRTSILÄ
✓	HHI thrusters	✓	ZF PROPULSION
✓	SCANA		

## TECHNICAL DATA : CARTER BIO 220

CHARACTERISTICS	METHODS	UNITS	TYPICAL VALUES*
Density at 15°C	ISO 3675	kg/m <sup>3</sup>	1.000
Kinematic viscosity at 40°C	ISO 3104	mm <sup>2</sup> /s	218.5
Kinematic viscosity at 100°C	ISO 3104	mm <sup>2</sup> /s	25.4
Viscosity index	ISO 2909	–	147
Flash Point (OC)	ISO 2592	°C	284
Pour Point	ISO 3016	°C	- 39
FZG A/8, 3/90 failure stage	DIN 51354-2	–	> 13

\*The specifications above are for illustrative purposes and communicated for information only.

## CUSTOMER BENEFITS

✓	<b>CARTER BIO</b> combines good lubrication properties and a high oxidation stability.
✓	<b>CARTER BIO</b> provides lubrication advantages at both high and low temperatures compared to mineral oils.
✓	The very high viscosity index and shear stability of <b>CARTER BIO</b> ensures a high lubricating film thickness at high temperatures.
✓	The lower pour point and the low temperature viscosity will ensure a better start up in cold operating environments.

## GENERAL RECOMMENDATIONS

### COMPATIBILITY

Compatibility should be checked.

Please consult your Lubmarine Lubrication Engineer should you have any questions.

### STORAGE

This product should be stored under cover in clean, dry conditions and protected from frost.

Recommended storage temperature range is 5°C to 50°C.

Drums that are stored on deck should be raised on pallets and covered to protect from the elements.

Always check regularly for leakage.

## COMPLIMENTARY PRODUCTS AND SERVICES

✓	<b>DiagomarPlus</b> – Laboratory based used oil analysis program.
✓	<b>Tech'Care</b> – Suite of onboard testing kits.
✓	<b>Technical Expertise &amp; Support</b> – Total Lubmarine engineers are on hand at worldwide locations to assist with lubrication concerns.
✓	<b>Lube-On-Ship</b> – Visualize your lube oils needs aboard Total Lubmarine's innovative virtual vessel.



EU Ecolabel: FR/27/002

Total Lubmarine / 00-04-2021 / CARTER BIO 220

This lubricant used as recommended and for the application for which it has been designed does not present any particular risk. A material safety data sheet conforming to the regulations in can be obtained via your Total Lubmarine technical advisor or from [sdstotalms.total.com](http://sdstotalms.total.com)

