

TECHNICAL PRODUCT SHEET

# CYBIO—GEAR

## ISO 220, 320



### DESCRIPTION

CYBIO GEAR series is a range of high-performance, biodegradable anti-wear gear oils designed for use in environmentally sensitive and marine applications. The products meet U.S. EPA 2013 Vessel General Permit (VGP) requirements for Environmentally Acceptable Lubricants (EALs). They provide excellent protection against gear and bearing wear, rust, and corrosion, along with good oxidation stability for extended oil life. CYBIO GEAR oils offer a wide operating temperature range, good low-temperature start-up, excellent air-release properties to reduce cavitation risk, and good seal compatibility to help minimize leaks.

### APPLICATIONS

CYBIO GEAR oils are recommended for marine controllable pitch propellers and thruster applications, as well as enclosed industrial and marine gear drives including steel-on-steel spur, helical, and bevel gear designs. They are particularly suitable for systems where readily biodegradable and minimally toxic lubricants are required. CYBIO GEAR oils are ideal for marine and mobile equipment operating in environmentally sensitive areas and may also be used in selected stern tube applications where the use of environmentally acceptable lubricants is specified.

### SPECIFICATIONS

|        |                            |            |                   |
|--------|----------------------------|------------|-------------------|
| DIN    | 51517 Part 3 CLP (2008/11) | EU         | Ecolabel criteria |
| DIN    | 51502                      | U.S. Steel | 224               |
| ISO    | 15380 (HEES)               | AGMA       | 9005-E02          |
| US EPA | VGP (2013)                 |            |                   |

### PROPERTIES

CYBIO GEAR series meet the U.S. EPA 2013 Vessel General Permit (VGP) requirements for environmentally acceptable lubricants. They offer outstanding load-carrying and anti-wear performance, with a shear-stable high viscosity index that maintains protective film strength across a wide operating temperature range. The formulation provides excellent resistance to high-temperature degradation, along with very good demulsibility and strong protection against rust and corrosion.

### BENEFITS

CYBIO GEAR series effectively protect gears and bearings against wear, micropitting, and scuffing, helping to extend equipment service life and improve reliability. Their thermal stability and shear stability ensure consistent protection under varying operating conditions, while excellent water separation and corrosion resistance help maintain clean systems, minimize maintenance, and support reliable operation in environmentally sensitive applications.



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### PHYSICAL-CHEMICAL CHARACTERISTICS

| CYBIO-GEAR                         | METHOD     | ISO 220 | ISO 320 |
|------------------------------------|------------|---------|---------|
| Density at 15°C, g/cm <sup>3</sup> | ASTM D4052 | 0.984   | 0.995   |
| Viscosity, Kinematic (cSt) 40°C    | ASTM D445  | 220     | 320     |
| Viscosity, Kinematic (cSt) 100°C   | ASTM D445  | 25.5    | 33.5    |
| Viscosity index                    | ASTM D2270 | 147     | 147     |
| Flash point, COC, °C               | ASTM D92   | 284     | 294     |
| Pour point, °C                     | ASTM D97   | -39     | -36     |
| Copper corrosion                   | ASTM D 130 | 1b      | 1b      |
| Demulsibility, min.                | ASTM D1401 | 15      | 15      |
| FZG gear scuffing test, A/8.3/90   | DIN 51354  | 14+     | 14+     |
| FZG micropitting test @90°C        | FVA 54-7   | 10+     | 10+     |

The above mentioned characteristics represent mean values.

### STORAGE

All packages must be stored in covered, well-ventilated areas. If outdoor storage cannot be avoided, barrels must be placed horizontally to prevent water ingress and to protect labels and markings from damage. Products must not be stored at temperatures above 60 °C and must not be exposed to direct sunlight, freezing conditions, or extreme temperature fluctuations.



### HEALTH & SAFETY

This product is not considered to pose significant risks to health or safety when used as intended and in accordance with recommended personal hygiene practices. It must not be applied for purposes other than those for which it has been formulated. For detailed guidance on safe handling and use, refer to the Safety Data Sheet (SDS).



### USED OILS

Used lubricants must be collected at designated collection points to prevent environmental contamination. They must not be mixed with solvents, brake fluids, or antifreeze.

