

# PRODUCT & TECHNICAL DATA

## CASTROL BIOSTAT SERIES Environmentally friendly stern tube/gear oil

### DESCRIPTION

The Castrol BioStat range of high specification stern tube oils are intended as drop-in replacements for conventional mineral oils in equipment where there is a risk of accidental spillage or leakage and consequential environmental damage.

BioStat contains selected additives ensuring good oxidation stability, good anti-corrosion and anti-wear properties and low aquatic toxicity. The combination of base oils used in BioStat endows it with a very high viscosity index and an extremely low pour point as well as giving excellent compatibility with elastomeric seal materials. The careful choice of the synthetic base oils enables the product to operate in a wide system temperature.

The biodegradability of BioStat was measured in an OECD 306 (seawater) biodegradation test with a result greater than 60%, making it 100% more biodegradable than conventional mineral oils. BioStat is therefore classified as readily biodegradable in the marine environment. The toxicity of BioStat was measured on 3 marine species and was found to be up to 100% less toxic than conventional mineral oils. It also has less potential for bioaccumulation and >80% of BioStat is derived from renewable resources.

BioStat is miscible with conventional mineral oil based stern tube and gear fluids. When changing from mineral oil based products to BioStat, the system should be drained to ensure that the mineral oil content of the refilled system is less than 5%. This is necessary to ensure that the overall biodegradability is not adversely affected.

### FEATURES AND BENEFITS

- Readily biodegradable in marine and freshwater environments.
- Significantly lower aquatic toxicity compared to conventional mineral Stern tube oils
- The majority of the base oil is derived from renewable resources and does not bioaccumulate.
- Good thermal stability
- Extremely resistant to hydrolysis
- Product is supplied in 208 litre steel drums.
- Physical properties and hence system operating characteristics are comparable with those of mineral oil-based stern tube and gear fluids
- BioStat is compatible with conventional mineral oil-based products
- Environmentally responsible. The ready biodegradability of the product ensures the rapid natural degradation of product should it enter the aquatic environment.
- Minimises harm to the environment in the event of an accidental spillage.
- Superior oxidative and thermal stability provides extended product life, therefore minimising product consumption and waste.
- Packaging can be re-used or recycled at the end of life.
- Existing equipment can be readily converted to BioStat with minimal risk and few, if any, system changes.

### Recommended for the following Applications

Castrol BioStat stern tube/gear oils are suited for the application in stern tube, reduction gear, thruster, spur, helical and planetary gear units, couplings, rolling and sliding bearings.

### Key Benefits

Castrol BioStat stern tube/gear fluids combine excellent protection, extended drain performance and versatility in Offshore operations to provide the following key benefits:-

- High biodegradability, low toxicity and reduced potential for bioaccumulation minimise environmental impact in the event of spillage or leakage
- Good oxidation and anti corrosion
- High shear stability
- Load stage >12 is passed in the FZG test
- BioStat passes the FZG micropitting test with high micropitting load carrying capacity
- High viscosity index allows start-ups at low temperatures and provides for a thicker lubricating film at high temperatures for additional anti-wear protection



# PRODUCT & TECHNICAL DATA

## TECHNICAL DATA

	TEST METHOD	BIOSTAT 68	BIOSTAT 100	BIOSTAT 150	BIOSTAT 220
<b>PHYSICAL TESTS</b>					
Kinematic Viscosity, cSt @ 40°C	ASTM D445	70	103	144.6	207.8
Kinematic Viscosity, cSt @ 100°C	ASTM D445	13.27	16.93	21.73	28.41
Viscosity Index	ASTM D2270	178	178	177	178
Relative Density	ASTM D4052	0.93	0.93	0.93	0.93
Pour Point, °C	ASTM D97	-39	-27	-24	-27
Flash Point, °C	ASTM D92	> 240	>240	>240	>240
Steel Corrosion Distilled water	ASTM D665	No rusting	No rusting	No rusting	No rusting
Sea Water		No rusting	No rusting	No rusting	No rusting
Copper Corrosion (100°C/3 hrs)	ASTM D130	1A	1A	1A	1A
Foaming properties - Seq1	ASTM D892	20/0	0/0	0/0	20/0
Flender foam test		Pass			
Demulsification time, mins	ASTM D1401	0/23/57 (30)	0/23/57 (30)	0/23/57 (30)	0/23/57 (30)
<b>PERFORMANCE TESTS</b>					
Oxidation stability (RPVOT)	ASTM D2272	320	320	320	320
FZG test A/8.3/90	DIN 51354 Part 2	>12	>12	>12	>12
FZG micropitting test	FVA No 54	>10	>10	>10	>10