PRODUCT & TECHNICAL DATA

CASTROL BIOSTAT RANGE

Environmentally responsible stern tube/gear oil

DESCRIPTION

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.

APPLICATIONS

The 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 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.

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/BENEFITS

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

- Reduced environmental impact when compared to conventional lubricants - demonstrable benefits in the following key environmental performance criteria:-
    - Superior biodegradation.
    - Significantly reduced bioaccumulation* and toxicity.
    - Enhanced renewability.

  *Using OSPAR criteria for assessing bioaccumulation potential.
- Good oxidation and anti corrosion.
- High shear stability.
- Good thermal stability.
- Extremely resistant to hydrolysis.
- 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.
- The majority of the base oil is derived from renewable resources and does not bioaccumulate.
- 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.

CARE AND HANDLING

- Put on appropriate personal protective equipment.
- Workers should wash hands and face before eating, drinking and smoking.
- Do not breathe vapour or mist.
- Do not ingest.
- Avoid contact with eyes, skin and clothing.
- Use only with adequate ventilation.
- Wear appropriate respirator when ventilation is inadequate.

Castrol Marine

PRODUCT & TECHNICAL DATA

PACKAGING AND STORAGE

- Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
- Store away from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials.
- Do not store in unlabeled containers.
- Use appropriate containment to avoid environmental contamination.
- Store in accordance with local regulations.

ADDITIONAL INFORMATION

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.

TECHNICAL DATA

TYPICAL CHARACTERISTICS	UNIT	TEST METHOD	VALUE	VALUE	VALUE	VALUE
BioStat			68	100	150	220
PHYSICAL TEST						
Relative density		ASTM D4052	0.93	0.93	0.93	0.93
Kinematic Viscosity @ 40°C	cSt	ASTM D445	70	103	144.6	207.8
Kinematic Viscosity @ 100°C	cSt	ASTM D445	13.27	16.93	21.73	28.41
Viscosity index		ASTM D2270	178	178	177	178
Flash point	°C	ASTM D92	>240	>240	>240	>240
Pour Point	°C	ASTM D97	-39	-27	-24	-27
Steel corrosion:Distilled water		ASTM D665	No rust	No rust	No rust	No rust
Sea water		ASTM D665	No rust	No rust	No rust	No rust
Copper corrosion (100°C/3 hrs)		ASTM D130	1A	1A	1A	1A
Foaming tendency/stability	cm^3/cm^3	ASTM D892	50/0	50/0	50/0	50/0
Flender foam test			Pass	Pass	Pass	Pass
Demulsification time	mins	ASTM D1401	0/23/57(30)	0/23/57(30)	0/23/57(30)	0/23/57(30)
PERFORMANCE TEST						
FZG gear test, A/8.3/90		DIN 51354-2	>12	>12	>12	>12
FZG micropitting test		FVA No. 54	>10	>10	>10	>10

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

GENERAL ADVICE

Further information on all Castrol Marine lubricants is available from any Castrol Marine office or from:

Castrol Marine
Technology Centre
Whitchurch Hill
Pangbourne
Reading RG8 7QR
United Kingdom

www.castrolmarine.com

Produced by BP Marine Limited.
Registered office: Chertsey Road, Sunbury-on-Thames,
Middlesex. TW16 7BP United Kingdom.
Registered in England & Wales, no 01214291.

Castrol Marine