



BioTrans Range

Environmentally responsible gear oils

Description

Castrol BioTrans has been developed as a range of drop-in replacements for conventional gear oils in order to minimise the environmental impact of the lubricant should it leak or spill into the sea.

Deck equipment like cranes and winches and drill floor systems like rotary tables rely upon gearboxes for power transmission and many are situated in exposed positions where any leakage may make its way into the sea. The carefully selected base oils of Castrol BioTrans gear oils provide high levels of biodegradability in the marine environment, minimising the persistence of the product in the sea.

Castrol BioTrans is miscible with conventional mineral oil-based gear oils. When changing from mineral oil based products to Castrol BioTrans, 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 maximum environmental benefit is achieved.

Application

Castrol BioTrans gear oils are suited for the lubrication of enclosed gearboxes utilising spur, helical or planetary gearing, geared couplings, rolling or sliding bearings where a risk of spillage or leakage into the marine environment is apparent. Castrol BioTrans gear oils have an operating temperature range from -25°C to +90°C.

Approval Status

- Castrol BioTrans gear oils are CLP E gear oils according to DIN 51502 and surpass the requirements for gear oils according to DIN 51517-3 and AGMA 250.04.
- Approved by Ortinghaus for use with their clutches.

Features and Benefits

Castrol BioTrans gear oils combine excellent protection and stability to provide the following key benefits:-

- 100% biodegradation in the marine environment when tested in an OECD 306 seawater biodegradation test. This ensures a high rate of biodegradation should the product enter the marine environment and provides a significant improvement in biodegradability compared with conventional gear oils.
- Significantly reduced potential for bioaccumulation in marine organisms and entering the food chain in comparison with conventional gear oils.
- Low toxicity, exceeding current North Sea OSPAR toxicity requirements* by at least 5 times and US EPA requirements ** by at least 10 times.
- Excellent oxidation stability results in extended oil life.
- Compatible with commonly used seals and paints allowing simple replacement of conventional lubricants.
- Excellent load carrying performance - load stage 12 is passed in the FZG Gear Test.
- Excellent protection for gear teeth, even under high load and high speed conditions. Castrol BioTrans passes the FZG Micro-pitting test with high micro-pitting resistance.

* As specified in the OSPAR Harmonised Pre-Screening Scheme.

** As specified in NPDES permit GMG29000 for subsea production control fluids.

Features and Benefits - BioTrans Range	
Feature	Benefits
Biodegradable in the marine environment.	Environmentally responsible. The high biodegradability of the product ensures the natural degradation of product should it enter the aquatic environment.
Low marine toxicity - exceed US EPA and UK OSPAR environmental requirements. Significantly reduced potential for bioaccumulation.	Minimises harm to the environment in the event of an accidental spillage.
Good thermal stability.	Highly stable product with long service life minimises product consumption and waste.
Physical properties and hence system operating characteristics are comparable with those of mineral oil-based fluids. Good compatibility with all common types of elastomeric seals, comparable with standard lubricants. BioTrans is compatible with conventional mineral oil-based products.	Existing equipment can be readily converted to Castrol BioTrans with minimal risk. Equipment reliability and performance is not compromised by environmental benefits.

Technical Data

Name	Method	Units	BioTrans 150	BioTrans 220
Viscosity, Kinematic 40°C	ASTM D445	mm ² /s	150	220
Viscosity, Kinematic 100°C	ASTM D445	mm ² /s	21.6	29.3
Viscosity Index	DIN ISO 2909	None	170	170
Relative Density @ 15°C	DIN 51757	g/ml	0.960	0.960
Pour Point	ASTM D97	°C	-27	-24
Flash Point (Open)	ASTM D92	°C	>230	>230
Steel Corrosion - Distilled Water	ASTM D665	None	No rusting	No rusting
Steel Corrosion - Seawater	ASTM D665	None	No rusting	No rusting
Copper Corrosion (100°C/3hrs)	ASTM D130		1	1
Foam Tendency / Stability	ASTM D892	cm ³ /cm ³	50/0	50/0
Flender Foam Test			Pass	Pass
Demulsification Times	ASTM D1401	mins	20	20
Hydrolytic Stability - Change in Acidity	ASTM D2619 (modified)	mgKOPH/g	-1.5	-1.5
Hydrolytic Stability - Copper Weight Loss	ASTM D2619 (modified)	mg/cm ²	0	0.1
Hydrolytic Stability - Water Layer Acidity	ASTM D2619 (modified)	mgKOPH/g	1.7	1.7
Oxidation Stability (RPVOT)	ASTM D2272	RPVOT	130	130
FZG Gear Test	DIN 51354 Pt 2	FLS	>12	>12

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

Care and Handling

Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Packaging and Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to exposed to hot sun or freezing conditions.

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