



Product Data

Castrol Tribol® 1100 Range

Gear oil With TGOA

DESCRIPTION

Castrol Tribol 1100 gear oils with the TGOA (Tribol Gear Oil Additive) additive system represent a significant advancement in gear oil technology. Developed for service in enclosed gear drives, journals, and antifriction bearings, Tribol 1100 gear oils are typically used where heavy and shock load conditions prevail.

Tribol 1100 gear oils are manufactured from the highest quality petroleum base oils. Blended into this oil is the latest development in the field of surface improving additives designated TGOA. TGOA is an oil soluble additive package designed to reduce friction while providing surface protection and improvement. The TGOA additive package offers superior performance because of its unique action on frictional surfaces.

The TGOA additive package is activated by high specific loads and corresponding temperatures causing a chemical-physical reaction. This results in an equalization of surface roughness without creating abrasion. Therefore, surface roughness is reduced without the loss of surface material.

The results of the TGOA additives can be compared with a rolling process in the micro-range. The surface roughness is gradually levelled and smoothed. Through smoothing of the working surfaces, the loads are distributed over increasing areas and the actual load carrying area is enlarged.

If surface roughness peaks redevelop because of shock loads or stop-and-go operation, the TGOA additive package is automatically reactivated. Surface roughness is again smoothed and lubrication optimized.

Tribol 1100 range has passed the Cincinnati Milacron Thermal Stability Test. This test evaluates copper and steel corrosion and oxidation stability. Tribol 1100 gear oils are approved as P 74, P 59, and P 35 for the ISO 220, 320, and 460 grades respectively. These oils exceed minimum requirements according to DIN 51517 Part. 3 for CLP gear oils

APPLICATION

Typical applications are spur, helical, herringbone, bevel, and planetary gears. They are also used in general couplings and where fine filtration is required. Tribol 1100 gear oils may be used in antifriction and journal bearings and applied by oil mist systems.

Tribol 1100 gear oils with the TGOA additive package are most effective when used from the initial fill of the equipment. It has also proven to be effective in applications where surfaces have previously been damaged in service.

ADVANTAGES

Because of equalization of surface roughness on interacting surfaces, the following advantages can be obtained:

- Running-in oils or additives are no longer required. Lapping of gears is no longer necessary.
- Regeneration of damaged frictional surfaces on a micro-scale.
- Less friction.
- Reduced wear
- Lower operating temperature.
- Decreased noise level.
- Longer life of gears and bearings.
- Reduced maintenance cost.

TYPICAL CHARACTERISTICS

Test	Method	Units	1100/68	1100/100	1100/150	1100/220	1100/320	1100/460	1100/680	1100/1000
ISO Viscosity Grade	ASTM D 2422	-	68	100	150	220	320	460	680	1000
AGMA Lubricant Number	-	-	2EP	3EP	4EP	5EP	6EP	7EP	8EP	8AEP
Specific Gravity, @ 60°F	ASTM D 1298	g/ml	0.89	0.89	0.89	0.89	0.89	0.89	0.90	0.91
Kinematic Viscosity @ 40°C	ASTM D 445	mm ² /s	68	100	150	220	320	460	680	1000
@ 100°C		mm ² /s	9.0	11.6	15.3	19.7	25.0	30.6	38.3	52.5
Viscosity Index	ASTM D 2270		100	100	100	100	100	95	95	100
Flash Point, COC	ISO 2592/ ASTM D92	°C/°F	236/457	240/464	245/473	245/473	247/477	248/478	250/482	253/487
Pour Point	ISO 3016/ ASTM D97	°C/°F	-33/-27	-30/-22	-27/-17	-24/-11	-21/-6	-21/-6	-18/0	-18/0
Rust Test Procedure A (24 hrs Distilled Water)	ISO 7210/ ASTM D665	-	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure B (24 hrs Synthetic Sea Water)		-	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Corrosion (3 hrs @ 100°C)	ISO 2160/ ASTM D130	-	1a	1a	1a	1a	1a	1a	1a	1a
SRV test, 50°C, 300 N, 2 hrs, Amplitude 1 mm, frequency 50 Hz	DIN 51834-02	μ				min. 0.07 – max. 0.09				
FZG Test, (A/8.3/90)	DIN 51354	-	>12	>12	>12	>12	>14	>12	>12	>12
FZG micropitting test	FVA No. 54	-				10				
Foam Sequence I	ISO 6247/ ASTM D892	mls/mls				0/0				

Subject to usual manufacturing tolerances.

Additional Information

Tribol 1100 gear oils are compatible with other petroleum gear oils. This means that traces of previous oil remaining in the gear case after draining should not pose problems. However, the beneficial effects of the TGOA additives are reduced when **Tribol 1100** gear oils are mixed with other oils. A thorough cleaning of the gearbox is highly recommended to achieve the maximum benefits of **Tribol 1100**.

Castrol Tribol 1100
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Castrol Industrial North America Inc. 150 West Warrenville Road, 605 3E Naperville, IL 60563
Tel: (877) 641 1600 Fax: (877) 648 9801

www.castrol.com/industrial