



## Product Data

# Castrol Tribol<sup>®</sup> 4020/220 Grease

**Castrol Tribol 4020/220 Greases** with TGOA<sup>®</sup> are light colored, elevated temperature, multi-service greases designed to extend the service life of bearings in heavy duty and elevated temperature applications.

TGOA is an additive package designed to reduce friction while providing surface protection and improvement due to its unique action on frictional surfaces. Because of the possible adverse effects on the environment, typical materials of expressed concern: i.e. antimony, barium, lead, zinc; are NOT used in Castrol Tribol 4020/220 Greases.

Because of the ISO 220 base oil viscosity, **Castrol Tribol 4020/220 Greases** provide a heavier oil film for applications at slower speeds, higher loads, and/or higher temperatures.

### Description

**Castrol Tribol 4020/220 Greases** are formulated from a petroleum base oil, a lithium complex thickener, and TGOA, the latest advancement in the field of friction reducing and surface improving additive technology.

The load-carrying, antiwear, and friction reducing capabilities of **Castrol Tribol 4020/220 Greases** exceed conventional complex greases. High performance is the result of the TGOA additives, which under relatively high specific loads and related temperatures, promote a nondestructive smoothing of surface roughness in the microrange. This smoothing effect leads to an increase of the actual load-bearing area and reduces friction.

The TGOA additives are very effective in protecting the machined surfaces of bearings during the critical "running-in" period. Good bearing surfaces are essential for long bearing life.

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

### Applications

**Castrol Tribol 4020/220-1 and 4020/220-2 Greases** meet NLGI consistency Grades 1 and 2 respectively. They are formulated from premium petroleum base oils, ISO VG 220.

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**Castrol Tribol 4020/220 Greases** with TGOA were formulated as multi-service lubricants for heavy duty applications of plain and antifriction bearings from medium to high loads. They are designed for continuous operating temperatures up to 150°C/302°F. Generally, for continuous service above 150°C/302°F, more frequent reapplication is required to prevent deterioration of the petroleum base fluid. **Reapplication cycles should be established that insures the grease does not stiffen in the bearing.**

### Advantages

**Castrol Tribol 4020/220 Greases** with TGOA offer:

- Increased load carrying capability: achieved by higher viscosity base oils and surface smoothing and friction reducing properties of TGOA.
- Excellent temperature stability: dropping point over 238°C/460°F.
- Outstanding water washout characteristics and shear stability: as a result of a highly stable, advanced lithium complex thickener in addition to special highly controlled manufacturing techniques.

The TGOA additive technology provides these further advantages for bearings:

- Reduced friction and wear,
- Reduced operating temperatures,
- Reduced noise, and
- Extended service life with reduced maintenance and repair costs.

### Notes

**Castrol Tribol 4020/220 Greases** with TGOA should not be mixed with greases using a different thickener.

At higher temperatures (above 100°C/212°F to 150°C/302°F) relubrication intervals should be established by inspection. It is important that grease in bearings remains pliable.

For temperatures above 150°C/302°F, regular reapplication of **Castrol Tribol 4020/220 Greases** must be considered to prevent deterioration of the petroleum base oil. For continuous service near 204°C/400°F, reapply **Castrol Tribol 4020/220 Greases** daily or once each shift. Reapply before the grease in the bearing stiffens.

For higher temperatures and/or slower speeds, **Castrol Tribol 4020/220 Greases** are available with a base oil viscosity of ISO VG 460.



## Product Data

For specific terms, conditions, warranty, and availability, refer to Castrol Performance Lubricants' Price List in effect at time of purchase.

### Typical Characteristics

	Castrol Tribol 4020/220 Greases	
	220-1	220-2
NLGI Grade	1	2
Thickener Type	Lithium Complex	Lithium Complex
Worked Penetration, ASTM D 217, mm/10	310-340	265-295
Dropping Point, ASTM D 2265, °C/°F	249/480	249/480
Base Oil Properties		
Viscosity, ASTM D 445, ASTM D 2161		
@40°C, cSt	220	220
@100°C, cSt	19	19
@100°F, cSt/SUS	251/1163	251/1163
@210°F, cSt/SUS	19.6/97	19.6/97
Flash Point, ASTM D 92, °C/°F	225/437	225/437
Water Washout, ASTM D 1264 at 79°C/175°F, % of loss	4	4
Rust Prevention Properties ASTM D 1743, Rating	Pass	Pass
Emcor Rust Test, DIN 51802, IP 220/87, ASTM D6138	Pass	Pass
Roll Stability, ASTM D 1831, % of change	3	4
Four Ball EP Test, ASTM D 2596		
Load Wear Index, kg	80	80
Weld Load, kg	400	400
Four Ball Wear Test, ASTM D 2266		
Scar Diameter, mm	0.5	0.5
Timken EP Test, ASTM D 2509		
OK Value, kg/lbs	23/50	23/50
SRV Test, (DIN E 51834-02-S) 50°C, 300 N, 2 hrs.		
Amplitude 1000 □, Frequency 50 Hz	0.08	0.08

Subject to Usual Manufacturing Tolerances.

All reasonable care has been taken to ensure that this information is accurate as of the date of printing. Nevertheless, such information may be affected by changes in the blend formulation occurring subsequent to the date of printing. Material Safety Data Sheets are available for all Castrol products. The MSDS must be consulted for appropriate information regarding storage, safe handling and disposal of a product.