

Synthetic Grease Comparison

	Test Method	NLGI GC Standard	NLGI LB Standard	Mobil 1 Synthetic (Automotive)	Molykote G-4700
NLGI Grade	---	1 to 3 (2 typ.)	1 to 3 (2 typ)	2	2
NLGI GC-LB Classification	ASTM D 4950	(N/A)	(N/A)	Yes	Yes
Color	---	(NR)	(NR)	Red	Gray/Black
Base Fluid Type	---	(NR)	(NR)	PAO ^[1]	PAO ^[1]
Thickener Type	---	(NR)	(NR)	Lithium Complex	Lithium Complex
Penetration (consistency): Worked 60 Strokes Worked 10,000 Strokes Worked 100,000 Strokes	ASTM D 217	220-340 (NR) (NR)	220-340 (NR) (NR)	280 295 305	265-295 --- ---
Dropping Point	ASTM D 566 or ASTM D 2265	220 C (428 F) min.	150 C (302 F) min.	288 C (550 F)	285 C (545 F)
Water Washout: @ 79 C (174 F) @ ~40 C (~104 F)	ASTM D1264	15% max.	(NR)	6 ---	--- ---
Oil Separation (in storage)	ASTM D 1742	6% max.	10% max	---	---
Rust Protection	ASTM D 1743	Pass	Pass	Pass	---
Four Ball Wear	ASTM D2266	0.6 mm max.	0.9 mm max.	0.40	0.32
Four Ball Extreme Pressure Weld Point Load Wear Index	ASTM D 2596	200 kgf min. 30 min.	200 kgf min. 30 min.	250 45	400 ---
High Temperature Life	ASTM D 3527	80 hours min.	(NR)	---	---
Fretting Wear	ASTM D 4170	(NR)	10 mg max.	---	---
Elastomer Compatibility: Volume Change Hardness Change	ASTM D 4289	-5% to +30% -15 to +2 Durometer	0 to +40% -15 to 0 Durometer	--- ---	--- ---
Leakage	ASTM D 4290	10 g max.	(NR)	---	---
Low-Temperature Torque	ASTM D 4693	15.5 N-m max.	(NR)	---	1.1
Usable Temperature Range	ASTM D 4950	-40 C to 160 C (-40 F to 320 F) "Frequent" ^[2]	-40 C to 120 C (-40 F to 248 F) "Prolonged" ^[3]	-40 C to 150 C (-40 F to 302 F)	-40 C to 177 C (-40 F to 350 F) "Estimated"
Base Oil Viscosity (cSt): @ 40 C (104 F) @ 100 C (212 F) Viscosity Index (calc.)	ASTM D 445	(NR)	(NR)	220 23.8 (135)	150 20 (154)
Timken OK Load (lbf)	ASTM D 2509	(NR)	(NR)	45	60

Notes: (N/A) => Not applicable
(NR) => No recommendation per NLGI GC/LB
(---) => Data not available

[1] PAO => polyalphaolefin (synthetic)

[2] The NLGI **GC** performance category specifies satisfactory lubrication "... over a wide temperature range. The bearing temperatures may range down to -40°C (-40°F), with frequent excursions to 160°C (320°F) and occasional excursions to 200°C (392°F)."

[3] The NLGI **LB** performance category specifies satisfactory lubrication "... at temperatures as low as -40°C (-40°F) and at temperatures as high as 120°C (148°F) over prolonged lubrication intervals"

References:

ASTM D 4950:

http://www.mcinnisusa.com/public/ASTM_D_4950.pdf

Mobil 1 Synthetic Grease:

http://www.mobil.com/USA-English/Lubes/PDS/glxxengrsmobil_1_synthetic_grease.pdf

Molykote G-4700:

<http://www2.dowcorning.com/DataFiles/090007c8800032fe.pdf>