

DuPont™ Krytox®

performance lubricants

Typical Properties of Krytox® General-Purpose Oils and Greases¹

GPL Oil Grades		100	101	102	103	104	105	106	107
GPL Standard Grease Grades		200	201	202	203	204	205	206	207
GPL Extreme Pressure Grease Grades		210	211	212	—	214	215	216	217
GPL Anticorrosion Grease Grades		220	221	222	223	224	225	226	227
ISO Grade of Oil ²		5	7	15	32	68	150	220	460
Estimated Useful Range ³									
°C		<–70–66	<–70–104	–63–132	–60–154	–51–179	–36–204	–36–260	–30–288
°F		<–94–150	<–94–220	–81–270	–76–310	–60–355	–33–400	–33–500	–22–550
Oil Viscosity, cSt	ASTM D445								
	20°C (68°F)	7	16	36	80	180	550	810	1600
	40°C (104°F)	4	8	15	30	60	160	240	440
	100°C (212°F)	—	2	3	5	9	18	25	42
	204°C (400°F)	—	—	—	—	—	3	3.9	6
	260°C (500°F)	—	—	—	—	—	—	2.1	3
Oil Viscosity Index	ASTM D2270	—	—	29	92	124	134	134	144
Oil Pour Point	ASTM D97								
	°C	<–70	<–70	–63	–60	–51	–36	–36	–30
°F		<–94	<–94	–81	–76	–60	–33	–33	–22
Oil Density, g/mL									
	0°C (32°F)	1.87	1.89	1.91	1.92	1.93	1.94	1.95	1.95
	100°C (212°F)	1.67	1.70	1.72	1.74	1.75	1.76	1.77	1.78
Maximum Oil Volatility, % in 22 hr	ASTM D972 (Modified)								
	66°C (150°F)	11	2	2	1	1	1	<1	—
	121°C (250°F)	87	35	20	7	3	2	1	—
	204°C (400°F)	—	—	—	—	—	10	<5	<1
Oil Separation from Grease, FTMS 791B 321.1									
wt loss, %/30 hr									
99°C (210°F)		18	9	7	5	4	4	3	3
204°C (400°F)		—	—	—	—	—	—	11	10
Oil, 4-Ball Wear Test, (20 kg/107°C [225°F])/1200 rpm/60 min	ASTM D4172								
	Wear Scar, mm (+0.01) ⁴	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4
	Friction Coefficient (+0.003) ⁴	0.08	0.07	0.07	0.08	0.07	0.07	0.08	0.08
Oil, Falex Pin/ V-Block Load Carrying	ASTM D3233								
	Ability, Max. Load, lb (gauge)	1375	1400	1250	1555	1450	>4500	>4500	>4500
	Torque at Max. Load, in-lb	30	31	32	35	32	56	65	65

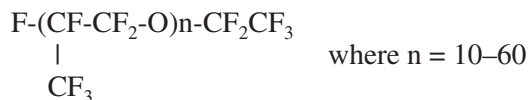
¹ This table gives typical properties (not specifications) based on historical production performance. Viscosity may vary within $\pm 10\%$. DuPont does not make any express or implied warranty that these products will continue to have these typical properties.

² Approximate

³ Based on pour point and where evaporation is approximately 10%

⁴ Average standard deviation

Krytox® GPL 100–107 oils are clear, colorless, fluorinated synthetic oils that are nonreactive, nonflammable, safe in chemical and oxygen service, and are long-lasting. Krytox® is a perfluoropolyether (PFPE)—also called perfluoro-alkylether (PFAE) or perfluoropolyalkylether (PFPAE)—with the following chemical structure:



The polymer chain is completely saturated and contains only carbon, oxygen, and fluorine. On a weight basis, a typical Krytox® oil contains 21.6% carbon, 9.4% oxygen, and 69.0% fluorine.

All standard grades of grease are thickened with Krytox® 2000 polytetrafluoroethylene (PTFE), whose formula is $(\text{CF}_2-\text{CF}_2)_n$. This special high efficiency thickener has a melting point of 325°C (617°F) and has low molecular weight and sub-micron (0.2 µm) particle size for higher performance in bearings.

Krytox® GPL 200–207 greases are white buttery greases with all of the same properties as the GPL 100–107 oils that they are made from, but they are in grease form.

Krytox® GPL 210–217 EP greases are black greases that contain 5% molybdenum disulfide added as an extreme pressure additive for highly loaded gears and bearings.

Krytox® GPL 220–227 anticorrosion greases are white greases that contain 2% sodium nitrite. These grades provide rust protection at ambient temperatures, corrosion protection at high temperatures, and antiwear protection.

The grease additives may alter the chemical resistance of the grease.

The standard grease consistency is NLGI grade 2 penetration (265–295). Softer or harder NLGI penetration grades can be made by special order.

Special nonmelting silica thickeners are available for applications that are higher than the 325°C (617°F) melting point of the standard PTFE thickener.

For more information or technical assistance, call:
or visit us on the Web:

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<http://www.krytox.com>

Or call the Krytox® hotline in the **United States** at (800) 424-7502, E-mail: krytox@usa.dupont.com

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