

# DuPont™ Krytox® Performance Lubricants

## PRODUCT INFORMATION

Typical Properties of Krytox® General-Purpose Oils and Greases<sup>1</sup>

Oil Grades	100	101	102	103	104	105	106	107
<b>GPL Standard Grease Grades</b>	<b>200</b>	<b>201</b>	<b>202</b>	<b>203 (H-1)</b>	<b>204</b>	<b>205 (H-1)</b>	<b>206 (H-1)</b>	<b>207</b>
<b>GPL Extreme Pressure Grease Grades</b>	<b>210</b>	<b>211</b>	<b>212</b>	—	<b>214</b>	<b>215</b>	<b>216</b>	<b>217</b>
<b>GPL Anticorrosion Grease Grades</b>	<b>220</b>	<b>221</b>	<b>222</b>	<b>223 (H-1)</b>	<b>224</b>	<b>225 (H-1)</b>	<b>226</b>	<b>227</b>
ISO Grade of Oil <sup>2</sup>	5	7	15	32	68	150	220	460
Estimated Useful Range <sup>3</sup>								
°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								
20 °C (68 °F)	12.4	17.4	38	82	177	522	822	1535
40 °C (104 °F)	5.5	7.8	15	30	60	160	243	450
100 °C (212 °F)	—	2	3	5	8.4	18	25	42
204 °C (400 °F)	—	—	—	—	—	3.1	4.1	6
260 °C (500 °F)	—	—	—	—	—	—	2.4	3.3
Oil Viscosity Index	—	—	29	92	111	124	134	145
Oil Pour Point								
°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, ASTM D2595								
% in 22 hr								
121 °C (250 °F)	90	75	35	7	3	1	<1	—
204 °C (400 °F)	—	—	—	—	—	7	<3	<1
Oil Separation from Grease, ASTM D6184								
wt loss, % in 30 hr								
99 °C (210 °F)	18	9	7	6	5	5	4	4
204 °C (400 °F)	—	—	—	—	—	—	12	12

<sup>1</sup> 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.

<sup>2</sup> Approximate

<sup>3</sup> Based on pour point and where evaporation is approximately 10%. H-1 incidental food contact approval has been given to products above that have H-1 after the product name.



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DuPont™ 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.

DuPont™ Krytox® is a perfluoropolyether (PFPE)—also called perfluoroalkylether (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 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 Krytox® 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 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 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 XHT grades are available for applications that are higher than the 325 °C (617 °F) melting point of the standard PTFE thickener.

## DuPont Performance Lubricants

Extreme Conditions. Extreme Performance.



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