

Mechanical Pump Oil Selection Chart

Application	Ultra- grade 15	Ultra- grade 19	Ultra- grade 20	Ultra- grade 70	Edwards TW	Fomblin® 06/6	Krytox® 1506	Fomblin® 16/6	Krytox® 1514	Fomblin® 25/6	Krytox® 1525
Mass spectrometers	•	•	•	•							
Electron microscopes	•	•	•	•							
Thin film sputtering	•	•	•	•							
Surface studies	•	•	•	•							
UHV systems	•	•	•	•							
Leak detection	•	•	•	•							
TV tubes		•	•	•							
Power valves		•	•	•							
Distillation		•	•	•	•						
Space studies		•	•	•							
Furnaces		•	•	•							
EB welders		•	•	•							
Semiconductors		•	•	•	•					•	•
Impregnation		•	•	•							
Chemical pumping		•	•	•	•					•	•
Oxygen pumping		•	•	•						•	•
Radioactive		•	•	•						•	•
Packaging		•	•	•							
Mechanical booster		•	•	•							
Metallisation		•	•	•					•		
vapour pressure mbar	5.8 x 10 ⁻⁶	1 x 10 ⁻⁸	2.1 x 10 ⁻⁷	2.1 x 10 ⁻⁷	1.3 x 10 ^{-6†}	4 x 10 ⁻⁶	5.2 x 10 ⁻⁷	3 x 10 ⁻⁶	2.6 x 10 ⁻⁷	4 x 10 ⁻⁸	1.3 x 10 ⁻⁷
100 °C	3.0 x 10 ⁻²	1.0 x 10 ⁻³	3.0 x 10 ⁻³	3 x 10 ⁻³	–	5 x 10 ⁻³	1.3 x 10 ⁻³	1 x 10 ⁻³	1.3 x 10 ⁻⁴	6 x 10 ⁻⁵	3.9 x 10 ⁻⁵
Molecular weight	385	420	500	600	430	1900	2400	2700	3500	3300	4600
Specific gravity at 15 °C	0.86	0.86	0.86	0.86	0.860	1.88	1.88	1.89	1.89	1.9	1.9
Viscosity cSt	104.2	143.7	352	222	155	64	70	168	140	276	250
at 20 °C	38.1	48.6	103	70	65	25	22	48	48	80	80
at 40 °C	-18	-16	-12	-12	-12	-50	-45	-45	-40	-35	-35
Pour point °C	220	230	260	230	243	none*	none*	none*	none*	none*	none*
Flash point °C	355	355	365	360	270	none*	none*	none*	none*	none*	none*
Auto ignition point °C	0	0	0	0	0	0	0	0	0	0	0
Sulphur content% mass/mass	Conducting polymers formed										
Energetic particle impact	No polymers formed (except with H ₂ ions)										
Thermal stability	good	good	good	good	poor	Excellent – decomposes to gas only above 300 °C*					0
Oxidation resistance	good	good	good	good	poor to fair	Excellent					0
Chemical resistance	fair	fair	fair	fair	poor to good	Excellent					0
Radiation resistance	fair	fair	fair	fair	fair	Good – but reacts with electro-positive metals (for example, sodium)					0

* WARNING – Perfluoropolyether is a fluorinated compound which will give off toxic vapours if exposed to temperatures above 280 °C. The fluid should not be exposed to naked flames and smoking should be prohibited in the working area.
 † Vapour pressure at 25 °C.

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