

## 3M™ Fluorinert™ Liquids Typical Properties

(Not for Specification Purposes)

All values determined at 25°C unless otherwise specified

Properties	Fluorinert Liquid									
	FC-87	FC-72	FC-84	FC-77	FC-3255	FC-3283	FC-40	FC-43	FC-70	FC-5312
Average Molecular Weight	290	340	388	415	438	21	650	670	820	820
Typical Boiling Point, °C	30	56	80	97	103	128	165	175	215	215
Pour Point, °C	-101	-90	-95	-95	-30	-50	-50	-40	-25	-25
Density, g/cm <sup>3</sup>	1.63	1.68	1.73	1.78	1.77	1.82	1.87	1.88	1.94	1.93
Density, -54°C g/cm <sup>3</sup>	1.84	1.90	1.93	1.97	■	■	■	■	■	■
Kinematic Viscosity, cs	0.4	0.4	0.55	0.8	0.71	0.75	2.2	2.8	14.0	12.6
Kinematic Viscosity, -54°C cs	1.1	1.9	4.0	6.9	■	■	■	■	■	■
Vapor Pressure, torr	610	232	79	42	31	11	3	1.3	<0.1	<0.1
Specific Heat, cal/g - °C	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Heat of Vaporization @ Boiling Point, cal/g	24	22	19	20	22	18	17	17	16	16
Thermal Conductivity, watts/(cm <sup>2</sup> ) (°C/cm)	0.00056	0.00057	0.00060*	0.00063*	0.00064	0.00066*	0.00066*	0.00066	0.00070*	0.00070*
Coefficient of Expansion cm <sup>3</sup> /(cm <sup>3</sup> )(°C)	0.0016	0.0016	0.0015	0.0014	0.0014	0.0013	0.0012	0.0012	0.0010	0.0010
Surface Tension, dynes/cm	9.5	12	13	15	15	16	16	16	18	18
Refractive Index	1.238	1.251	1.261	1.280	1.270	1.281	1.290	1.291	1.303	1.303
Dielectric Strength, KV(2.54 mm gap)	42	38	42	40	40	43	46	42	40	40
Dielectric Constant, (1KHz)	1.72	1.76	1.81*	1.86	1.90	1.89	1.89	1.90	1.98	1.98
Dissipation Factor, (1KHz)	<0.0005	<0.0003	<0.0003*	<0.0003	N/A	<0.0003*	<0.0003	<0.0001	<0.0001	<0.0001
Volume Resistivity, ohm-cm	5.6x10 <sup>15</sup>	1.0x10 <sup>15</sup>	1.0x10 <sup>15</sup>	1.9x10 <sup>15</sup>	N/A	5.0x10 <sup>15</sup> *	4.0x10 <sup>15</sup>	3.4x10 <sup>15</sup>	2.3x10 <sup>15</sup>	2.3x10 <sup>15</sup>
Solubility of Water ppm(wt.)	7	10	11*	13	11	7*	7	7	8	8
Solubility of Air ml gas/100 ml liquid	54	48	43*	41	N/A	30*	27	26	22	22

\* Estimated values    ■ Not measured due to relative proximity to pour point    N/A-not available