

COMPARISON TABLE

COVEN FP4001 vs 3M Novec 649 & 612

	1 or 2 phase	2 phases	
	3M Novec 649	COVEN FP4001	3M Novec 612
Appearance	clear	clear	clear
Boiling point	49°C	49°C	49.2°C
Freeze Point	-108°C	-108°C	-108°C
Density (g/ml)	1.6	1.6	1.6
Surface Tension (dynes/cm)	10.8	10.8	
Vapor Pressure (Pa)	40000	40000	40400
abs Viscosity (cps)/ kinetic viscosity cSt	0.64 / 0.4	0.64 / 0.4	- / 0.39
Heat of Vaporization (kJ/kg)	88	88	88
Calculated critical temperature, °C	169°C	169°C	168.7°C
Calculated critical pressure, MPa	1.88	1.88	1,865
liquid thermal conductivity, W/mK	0.059	0.059	
Coefficient of Expansion (K ⁻¹)	0.0018	0.0018	
Dielectric Strength/constant	>40 kV/ 1.8 @1KHz	>60 kV/ 1.8 @1KHz	relative to N2 = 2.3
Volume resistivity	10 ¹² Ohm-cm	10 ¹² Ohm-cm	
Temperature Range	-105 ~ 50°C: 1 phase 2 phases: 49°C	2 phases: 49°C	