

# Gemini<sup>®</sup> FLE/FL Perfluorinated Electronic Fluids

## Introduction:

FLE/FL Perfluorinated Electronic Fluids are clear, colorless, odorless, nonflammable, zero ozone depletion potential fluids. They are non-toxic, non-corrosive, high density, wide range boiling point, low surface tension, high dielectric strength, high chemical and thermal stability. They are insoluble in water and compatible with most metals, plastics and elastomers. FLE/FL series are perfluorocarbon (PFC). Its outstanding properties make it useful for many applications like lubricant carrier, resin deposition carrier, vapor phase soldering, thermal management, inert reaction media, dielectric testing media, specialty solvent, electronic cooling, heat transfer media, thermal shock testing media, dielectric medium in power electronics and high voltage transformer etc. FLE/FL can replace CFC, HCFC.

	FLE-50	FLE-56	FLE-95	FLE-128	FLE-165	FLE-175	FLE-215
Boiling point °C	50	56	95	128	165	175	215
Pour point °C	-73	-90	-127	-50	-57	-50	-25
Molecular weight	299	338	399	521	650	670	820
Density g/mL	1.71	1.68	1.79	1.82	1.85	1.86	1.94
Kinematic viscosity cSt	0.42	0.38	0.79	0.75	2.2	2.5	12
Thermal conductivity W/m-K	0.062	0.057	0.063	0.066	0.065	0.065	0.07
Surface tension mN/m	13	12	15	15	16	16	18
Dielectric strength kV 0.1mm gap	40	40	40	43	46	42	40
Dielectric constant 1kHz	1.9	1.8	1.9	1.9	1.9	1.9	2
Solubility of water ppm wt.	14	10	14	7	7	7	8

	FL-52	FL-56	FL-58	FL-60	FL-76
Boiling point °C	50	40~60	80~100	56	131
Density g/mL	1.7	1.69	1.75	1.68	1.55
Kinematic viscosity cSt	0.4	0.8	0.9	0.38	1.1
Solubility of water ppm wt.	14	<20	<15	10	410

## Features:

- Nonflammable, non toxic, high dielectric strength, no residue after evaporation
- Low surface tension, low viscosity, high density, good penetration
- Good compatibility with most metals, plastics and elastomers, easily recovery by distillation
- Its inert nature enable good compatibility with sensitive materials and do not bond with other chemicals
- Good thermal and chemical stability, thermal transport properties remain unchanged over time

## Typical Applications:

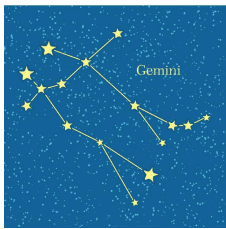
- Lubricant carrier, resin deposition carrier
- Thermal management, electronic cooling, heat transfer media
- Vapor phase soldering
- Inert reaction media, specialty solvents
- Dielectric testing media, thermal shock testing media, sensor testing, burn in testing, high voltage testing, leak testing
- Dielectric medium in power electronics and high voltage transformer
- Replacement of CFC, HCFC

**Attentions:**

- . Container should be closed promptly after use to avoid evaporation. Always wash hands after treatment.
- . During processing, wear protection clothes, be careful of eye、 skin contact.
- . Keep the container sealed and store in cool、 well ventilated locations.

**Packaging/Transport:** 50Kg,100Kg plastic jug,200Kg drum. Not classified as dangerous in the meaning of transport regulations.

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