Solvay Solexis

SOLVAY

Galden PFPE: Heat Transfer Fluids

Product Data Sheet

Galden®

Solvay Solexis offers a safe Heat Transfer (HT) media for demanding applications, including:

- **Semiconductor**
- **Chemical**
- **Pharmaceutical**
- **Vapor Phase Heating**
- **Transformer and Super Computer Cooling**
- **Recirculating Chillers**

Galden HT is a line of fluids with boiling points ranging from 55°C to 270°C and pour points from –115°C to –66°C. Galden HT fluids therefore cover a wider liquid range than other fluorinated heat transfer fluids, with typical use range temperatures exceeding 300°C.

Galden HT Fluids Application Chart

Industries	Applications	Benefits
Electronic	Direct Immersion	Compatibility (inert) High thermal stability
	Etcher (PVD, CVD)	Compatibility Dielectric Low viscosity at low temperatures Dielectric (non–conductive) Non–flammable
	Ion Implanter	High resistivity Environmentally safe
	Radar	Compatibility Thermal and oxidative stability
Electrical	Transformer Power Supplies	Non-flammable Environmentally safe Excellent dielectric properties
Nuclear	UF6 Production	Low viscosity Good radiation resistance
Chemical	Aggressive Conditions	High chemical and thermal stability, Inert Oxidative stability
Pharmaceutical	Freeze Dryer	Non–flammable Low temperature viscosity

For information contact your Solvay Solexis representative or:

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The following properties are equal for all Galden Heat Transfer grades:

Typical Property	Units	All Galden HT Grades
Specific Heat, 25°C	cal/g°C	0.23
Thermal Conductivity, 25°C	W/cm°C	0.0007
Coefficient of Expansion	$cm^3/cm^3{}^oC$	0.0011
Dielctric Strength, 25°C	KV (2.54 mm gap)	40
Dissipation factor, 25°C (1Khz)	—	$2x10^{-4}$
Solubility of Water	ppm(wt)	14
Solubility of Air	cm^3gas/100cm^3 liquid	26

Galden HT Fluids

Available Grades and Typical Physical Properties

Typical Properties	Units	HT55	HT70	HT90	HT110
Boiling Point	°C	55	70	90	110
Pour Point	°C	<-110	<-110	<-110	<-110
Density, 25°C	g/cm^3	1.65	1.68	1.69	1.71
Kinematic Viscosity, 25°C	cSt	0.45	0.50	0.75	0.77
Kinematic Viscosity, 0°C	cSt	0.64	0.75	1.14	1.21
Kinematic Viscosity, -20°C	cSt	0.91	1.09	1.75	1.94
Kinematic Viscosity, -40°C	cSt	1.40	1.79	3.12	3.74
Vapor Pressure, 25°C	torr	225	141	48	17
Heat of Vaporization @ Boiling Point	cal/g	22	17	17	17
Refractive Index, 25°C	—	1.280	1.280	1.280	1.280
Surface Tension, 25°C	dynes/cm	10	14	16	16
Average Molecular Weight	—	340	410	460	580
Dielectric Constant 25°C (1Khz)	—	1.86	1.86	1.90	1.90
Volume Resistivity	Ohm–cm	$1x10^{12}$	$1x10^{15}$	$1x10^{15}$	$1x10^{15}$

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Available Grades and Typical Physical Properties

Typical Properties	Units	HT135	HT170	HT200	HT230	HT270
Boiling Point	°C	135	170	200	230	270
Pour Point	°C	<-100	-97	-85	-77	-66
Density, 25°C	g/cm^3	1.72	1.77	1.79	1.82	1.85
Kinematic Viscosity, 25°C	cSt	1.0	1.8	2.4	4.4	14.0
Kinematic Viscosity, 0°C	cSt	1.69	3.41	4.97	12.00	48.0
Kinematic Viscosity, -20°C	cSt	2.92	7.11	11.65	34.00	—
Kinematic Viscosity., -40°C	cSt	6.32	21.14	—	—	—
Vapor Pressure, 25°C	torr	8	<1	<1	<1	$<10^{-2}$
Heat of Vaporization @ Boiling Point	cal/g	16	16	15	15	15
Refractive Index, 25°C	—	1.280	1.280	1.281	1.283	1.283
Surface Tension, 25°C	dynes/cm	17	18	19	19	20
Average Molecular Weight	—	610	760	870	1020	1550
Dielectric Constant 25°C (1Khz)	—	1.90	1.90	1.94	1.94	1.94
Volume Resistivity	Ohm–cm	$6x10^{15}$	$6x10^{15}$	$6x10^{15}$	$6x10^{15}$	$6x10^{15}$

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