



VACUUM OILS & GREASES

- Diffusion Pumps FluidsN 06

Diffusion Pumps Fluids

The ideal diffusion pump oil would be thermally stable, non-volatile, chemically inert and non-toxic. Real diffusion pump fluids, on the other hand, represent compromises between these properties; no one fluid does it all. Neyco offers a broad range of diffusion pump oils, including

hydrocarbon, inert PFPE, polyphenyl ether and silicone fluids for a wide range of applications. These fluids include distilled hydrocarbons, silicones, organic esters and other synthetics. This wide selection ensures that we can supply the proper fluid for your application.

PRODUCTS	VAPOR PRESSURE AT 25°C (mbar)	BOILING POINT AT 10 ⁻² mbar (°C)	VISCOSITY AT 40°C (cSt)	DENSITY AT 25°C (g/ml)
NE-702	3.3.10 ⁻⁶	190	26.8	1.07
NE-704	2.10 ⁻⁸	220	24.2	1.07
NE-705	2.4.10 ⁻⁹	250	66	1.09
Fomblin Y18/8	2.10 ⁻⁸	-	*190	*1.89
Fomblin Y25/9	2.10 ⁻⁹	-	*285	*1.89
Inland geminYe 18-8	2.10 ⁻⁸	-	*180	*1.89
Inland geminYe 25-9	2.10 ⁻⁹	-	*270	*1.90
Santovac 5	4.10 ⁻¹⁰	200	307	1.20

*At 20°C

MINERAL OILS	VAPOR PRESSURE AT 25°C (mbar)	BOILING POINT AT 10 ⁻² mbar (°C)	VISCOSITY AT 40°C (cSt)	DENSITY AT 25°C (g/ml)
Invoil	2.10 ⁻⁶	126	27	0.98
Invoil 20	3.10 ⁻⁶	127	58	0.86
Invoil 30	5.10 ⁻⁶	127	58	0.86
Invoil 46	< 10 ⁻⁸	129	65	1.90

SILICONE FLUIDS NE-702 / NE-704 / NE-705

Neyco's NE-702, NE-704 and NE-705 diffusion pump fluids are designed for high vacuum and for fast pumping of large volumes of gas or vapor in production operations.

NE-702

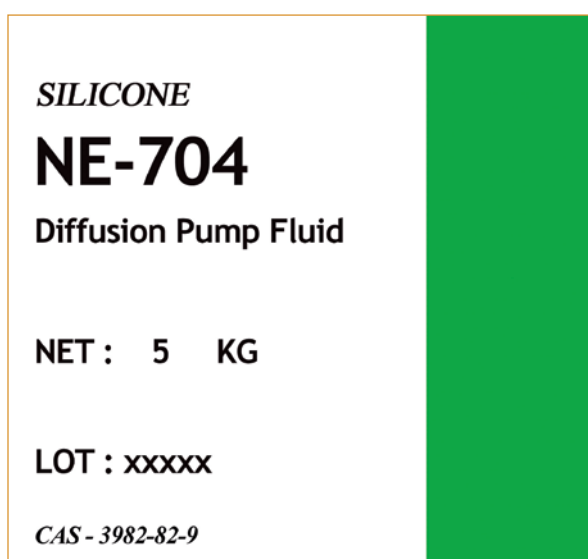
NE-702 is a general-purpose fluid designed for fast pumping of large volumes of gas. It is used to produce vacuums in the range of 10^{-5} to 10^{-7} mbar. It is also used in vapor ejector pumps that attain vacuums of 10^{-4} to 10^{-5} mbar. It has the important advantage of thermal stability. This silicone based fluid is resistant to air at operating temperatures, so the pumps require no cooling between cycles.

NE-704

NE-704 is a single-component fluid for high vacuums of 10^{-6} to 10^{-8} mbar (untrapped) and 10^{-9} to 10^{-10} mbar (trapped). It performs well in tough, rugged applications and offers quick pumpdown, even after exposure to air at operating temperatures. This fluid's low vapor pressure and thermal stability make it popular in processes such as vacuum coating, metallurgical work, and various other applications.

NE-705

NE-705 is a colorless to straw-colored, single-component fluid designed for ultra-high vacuum applications in the range of 10^{-9} to 10^{-10} mbar (untrapped) and 10^{-11} mbar (trapped). The vapor pressure and backstreaming rate of NE-705 are so low that use of traps or refrigeration is unnecessary for some ultrahigh and ultraclean vacuum applications. It has the highest phenyl content of all silicone diffusion pump fluids and the best resistance to radiation.



SPECIFICATIONS	UNITS	NE-704	NE-705
Ultimate vacuum untrapped trapped	mbar	10^{-6} to 10^{-8} to 10^{-10}	10^{-9} to 10^{-10} to 10^{-11}
Vapor pressure at 25°C	mbar	$6 \cdot 10^{-8}$	$3 \cdot 10^{-9}$
Boiling point at 10^{-2} mbar	°C	220	250
Viscosity at 40°C	cSt	24.2	66
Viscosity at 100°C	cSt	6.2	9.82
Pour point	°C	< -9	< 0
Flash point	°C	> 210	243
Fire point	°C	None	None
Density	g/ml	1.07	1.09
Packaging	-	500 cc/5 kg/20 kg	500 cc/5 kg/20 kg

FOMBLIN YH-VAC

Fomblin YH-VAC fluids are suggested for applications requiring a high quality vacuum such as in scanning electron and transmission microscopes, mass spectrometers, particle accelerators, ion implantation, plasma and vapor

deposition processes, etc. In addition, it is recommended for pumps handling reactive gases such as UF₆, UF₂, Oxygen, Ozone, Tritium, etc. Direct contact with these gases will not result in any type of reaction or fluid degradation.

INLAND *geminYe* PFPE OILS HIGH VAC GRADES

geminYe PFPE family of lubricants are non-flammable, chemically inert and thermally stable. *geminYe* fluids have excellent lubricity properties and are available in viscosity grades suitable for use in all vacuum pumps.

When used with proper filtration, *geminYe* fluids provide exceptionally long service life.

SPECIFICATIONS	UNITS	FOMBLIN		<i>geminYe</i>	
		Y18/8	Y25/9	18-8	25-9
Vapor pressure at 20°C	mbar	2.10 ⁻⁸	2.10 ⁻⁹	2.10 ⁻⁸	2.10 ⁻⁹
Viscosity at 20°C	cSt	190	285	180	270
Pour point	°C	-10	-10	-42	-35
Flash point	°C	None	None	None	None
Fire point	°C	None	None	None	None
Density	g/ml	1.89	1.89	1.89	1.90
Packaging	-	1 kg	1 kg	1 kg	1 kg

INVOIL

The Invoil fluid is specially distilled for use in diffusion pumps where pressure of 10⁻⁷ mbar is required. It's a

standard fluid for mass spectrometers, leak detectors, distillation systems, and electron microscopes.

INVOIL 20

Invoil 20 is also a high quality, general purpose hydrocarbon diffusion pump fluid that works well in any diffusion pump. The fluid is designed to meet the

vapor pressure requirements of a diffusion pump while exhibiting excellent thermal stability. Invoil 20 can also be used in a mechanical pump.

INVOIL 30

Invoil 30 is a specially developed diffusion pump fluid which is double distilled. This hydrocarbon is modified for high temperature use with a strong antioxidant. Invoil 30

can be used in applications such as metallizing, optical and microelectric coatings, sputtering, and metallurgy.



Invoil 30

INVOIL 46

Invoil 46 is a synthetic (arylalkyldiphenylether) diffusion pump fluid whose performance combines the best properties of silicones and polyphenyl ethers. It was developed to accommodate the performance requirements of such applications such as CRT evacuation, optical coatings, evaporation and sputtering, vacuum metallurgy, leak detection, and mass spectrometry.

As a result of its unique chemical structure, Invoil 46 offers excellent thermal stability and radiation resistance. It can attain untrapped pressures near 10^{-8} mbar. Its ability to recover from accidental exposure to atmosphere during normal operation is comparable to that of silicon pump fluids. In addition, deposits formed in the even of ionization or breakdown of the fluid are conductive and do not accumulate static charges.

SPECIFICATIONS	UNITS	INVOIL	INVOIL 20	INVOIL 30	INVOIL 46
Vapor pressure at 25°C	mbar	2.10^{-6}	3.10^{-6}	5.10^{-6}	5.10^{-8}
Boiling point at 10^{-2} mbar	°C	126	127	127	129
Viscosity at 40°C	cSt	27	58	58	65
Viscosity at 100°C	cSt	3.9	8.5	8.5	9.0
Pour point	°C	-52	-10	-10	-20
Flash point	°C	196	224	241	260
Fire point	°C	229	259	271	None
Density	g/ml	0.98	0.86	0.86	0.90
Packaging	-	60 cc/1 L	1 L/5 L/19 L	1 L/5 L/19 L	100 cc/1 L

SANTOVAC 5

Santovac 5 is polyphenyl ether synthetic diffusion pump fluid capable of producing ultra-high vacuum in the 10^{-10} mbar range. Due to this fluid's extremely low vapor pressure, backstreaming characteristics are lower than any other fluid resulting in less contamination and longer operation. Santovac 5 has exceptionally low volatility and is thermally stable, non-halogenated water white fluids. It exhibits extraordinary resistance to degradation from heat, oxygen, radiation and chemical attack. This lubricant is designed for applications where extremely high temperatures and adverse environments are expected. It is compatible with most metals and elastomers commonly used in vacuum pumps.

Santovac 5 is ideal for use in many applications including laboratory, analytical and research operation, vacuum production, thin films, space simulation chambers, and optical coatings.

SPECIFICATIONS	SANTOVAC 5
Vapor pressure at 25°C	4.10^{-10} mbar
Boiling point at 10^{-2} mbar	200°C
Viscosity at 40°C	307 cSt
Viscosity at 100°C	15.4 cSt
Pour point	4°C
Flash point	288°C
Fire point	349°C
Density	1.20 g/ml
Packaging	100 cc / 500 cc



Santovac 5



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