APIEZON Wax L, M & N
Ultra High & High Vacuum Greases

- Very high vacuum range
- Ambient temperatures
- Cryogenic uses
- Radiation resistant
- Added cushioning
- Excellent lubricants
- Silicone & halogen free

Introduction

Apiezon L, M and N greases have been specifically developed for vacuum use, but are also extensively used for non-vacuum purposes in a variety of industrial and scientific applications.

High vacuum

Apiezon L grease has the best vapour pressure properties of all the Apiezon products and can be used in the very high vacuum range, while M and N grease can be used in high vacuum conditions. Full information on the vapour pressures of each grease over its working temperature range is shown in the graph below.

Ambient temperatures

Apiezon L, M and N grease are generally used at ambient temperatures.
If you require a grease for use at higher temperatures, Apiezon AP101 or Apiezon H grease may be the answer. Please refer to their individual data sheets.

Cryogenic Uses

Apiezon N grease is widely recognised and recommended as the cryogenic vacuum grease of choice. A full data sheet on the cryogenic vacuum uses of Apiezon N grease is available on request.

Silicone free

Being hydrocarbon based, Apiezon greases do not suffer from the problems of "creep" or "carry over" which is traditionally associated with silicone greases.
This benefits scientific users because the risk of sample contamination and consequently the risk of interference in analytical techniques such as infrared or mass spectrometry, etc. are avoided.
In industrial applications, silicone creeping can create problems in industrial paint or metal deposition processes as trace amounts of silicone on surfaces prevent the adherence of paint and poor or incomplete coverage results.

Radiation resistant

For a radiation resistant grease look no further than Apiezon L or M grease, as both have built-in resistance to irradiation. They are markedly better lubricants at higher irradiation levels than other high vacuum greases like esters silicones or halogenated paraffins, which decompose at radiation levels of 10 Mrads or less.
Apiezon L grease continues to maintain its excellent lubrication properties, despite a small increase in viscosity when irradiated with 4 MeV electrons to about 100 Mrads.

Non vacuum

Apiezon L and M greases have strong powers of absorption, particularly for other hydrocarbon molecules due to their complex hydrocarbon structure and very high molecular weight. They are frequently used as the stationary phase in gas chromatography.

Long lasting lubrication

Apiezon greases L and M have been especially formulated to provide excellent lubrication while maintaining an efficient gas seal and are widely used in the manufacture and servicing of high performance vacuum pumps.

Industry approvals

Apiezon vacuum greases have gained many prestigious approvals. Apiezon L grease, for example, is approved by The European Space Agency, Matra Marconi, NASA and NATO, while M grease is approved by NATO and N grease is approved by NASA.

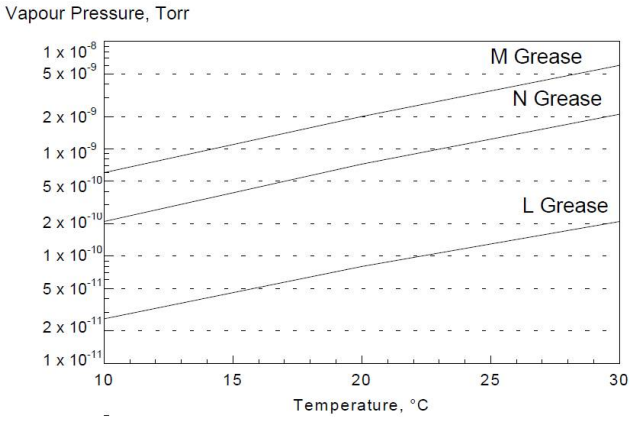
Added cushioning

Apiezon N grease has a special additive which gives it a tenacious, rubbery consistency and provides an extra cushioning effect which absorbs vibrations in equipment, making N grease invaluable in fragile glass to glass joints, like burette taps, which continually risk fracture.

Typical Properties

	L	M	N
Dropping point – ASTM.D 566-02 °C	42 to 52	40 to 48	42 to 52
Typical working temperature range, °C	10 to 30	10 to 30	-269 to 30
Vapour pressure @ 20°C, Torr	$7x10^{-11}$	$1.7x10^{-9}$	$6x10^{-10}$
Relative density @ 20°C	0.896	0.894	0.911
Resistant to radiation	Yes	Yes	Not recommended
Outgassing characteristics - ASTM .E 595-93(2003)e1 TML CVCM	 <1% <0.1%	 - -	 <1% <0.1%
Lubricity 4 Ball Test - ASTM.D 2596-97(2002)e1, kg	150	140	150
Viscosity of molten grease, cSt @ 50°C @ 100°C	 766 62.3	 413 29.8	 - -
Coefficient of expansion per °C over 20°C - 30°C	0.00076	0.00075	0.00072
Thermal conductivity @ 20°C, w/m°C	0.194	0.194	0.194
Volume resistivity, Ω cm	$1.2x10^{16}$	$2.6x10^{16}$	$2.0x10^{16}$
Permittivity	2.3	2.1	2.3
Loss tangent	<0.0001	<0.0001	<0.0001
Surface breakdown at flash over, kV	24	28	27
Electrical strength, V/mil(0."001)	730	850	820

Vapour pressure over working temperature range



АО «Интек Аналитика» г. Санкт-Петербург, ул. Оптиков, д. 4, корп. 2, лит. А, оф. 209; тел.: +7 (812) 493-24-80, info@intech-group.ru ,
Москва тел.: +7 (495) 725-24-80 **Зеленоград** тел.: +7 (495) 725-24-80 www.intech-group.ru
Новосибирск тел.: +7 (383) 328-13-67