

High Temperature Vacuum Grease

January 2018

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Introduction

Apiezon H grease is the ideal choice for use at higher temperatures across a wide variety of applications in both science and industry. The table opposite shows the key features of the product.

Higher temperatures

Apiezon H grease can be used over a wide range of temperatures from -10 to +240°C, while optimum consistency is retained at between +10 and +110°C.

Apiezon H grease is a relatively stiff grease which does not melt, but becomes stiffer as the temperature increases. It is not recommended as a lubricant in high temperature applications.

Apiezon H grease is specifically recommended for sealing and heat transfer applications.

Thermally conducting

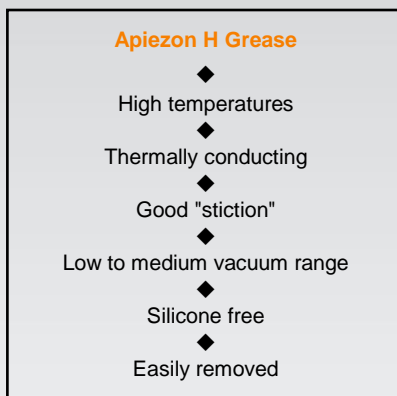
Apiezon H grease is a filled hydrocarbon grease which exhibits excellent heat transfer properties.

Allowing heat to conduct away from a site of operation, Apiezon H grease will reduce the danger of overheating and hence will limit the risk of damage to heat sensitive components.

Under vacuum

Apiezon H grease exhibits good vacuum properties in the low to medium vacuum range at higher temperatures. At lower temperatures Apiezon H grease can be used in the high vacuum range.

For full information on the vapour pressure of Apiezon H grease please refer to the vapour pressure curve opposite.



Sticking power

Apiezon H grease is a very tenacious grease exhibiting excellent cohesive strength. With Apiezon H grease, gone are the days of loose fitting glassware and mated joints working loose.

"Stiction" power makes Apiezon H grease ideal for use with laboratory glassware. Combined with properties of high thermal conductivity, this makes it the perfect choice for the electronics and space industries where heat sink media require adhesion.

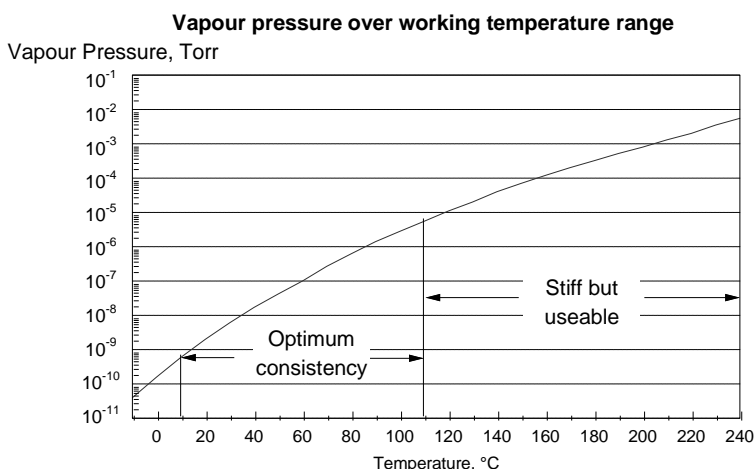
Silicone free

As a hydrocarbon based grease, H grease is highly resistant to "creep" or "carry over", a phenomenon associated with silicone-based products. Silicone has a tendency to travel away from the area of application and contaminate adjacent surfaces.

The creep resistance of Apiezon H grease benefits scientific users as it reduces sample contamination and the risk of interference in analytical techniques such as infra-red and mass spectrometry.

Silicone contamination is of particular concern in surface coating applications such as industrial paint or metal deposition processes. Trace amounts of silicone on surfaces prevent the adherence of paint resulting in poor or incomplete coverage. In semiconductor manufacture, yields can be severely affected by silicone contamination.

When using silicone-free Apiezon H grease the problems associated with creep and contamination are avoided.



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"Gettering" action

Apiezon H grease is manufactured from a unique feedstock containing a high proportion of branched and unsaturated hydrocarbons. These complex structures give Apiezon H grease a very high molecular weight and consequently strong powers of absorption, particularly for other hydrocarbon molecules.

Strong absorption properties ensure that Apiezon H grease has a powerful "gettering" action, i.e. the power to absorb greasy or chemical impurities on metal and glass surfaces. This is of value in the electronics industry where scrupulous cleanliness is required.

Apiezon H grease has no contaminating effect on electrical equipment and is easily removed by hydrocarbon solvents, taking with it many trace impurities which are not removed by solvents alone.

Compatibility

Apiezon H grease is compatible with a wide range of o-ring materials including:-

- ▶ Viton
- ▶ Silicone
- ▶ Nitrile (>30% nitrile content)
- ▶ Nylon
- ▶ Polyurethane
- ▶ Polyethylene
- ▶ Polypropylene

Due to its hydrocarbon base, Apiezon H grease is not compatible with:-

- ▶ EPDM (ethylene propylene diene M-class rubber)
- ▶ EPR (ethylene propylene rubber)
- ▶ Butyl rubber
- ▶ PVC seals

Typical Properties

<i>Typical working temperature range,</i>	°C	-10 to 240
	°F	14 to 464
<i>Dropping point - ASTM.D 566</i>		does not melt
<i>Vapour pressure @ 20°C / 68°F, Torr</i>		1.7×10^{-9}
<i>Relative density @ 20°C / 68°F</i>		0.918
<i>Thermal conductivity @ 20°C, W/m °C</i>		0.216
<i>Specific heat @ 25°C, J/g</i>		1.7
<i>Lubricity 4 Ball Test - ASTM .D 2596, kg</i>		250

Easily removed

Apiezon H grease is easily removed by wiping with a soft clean lint free cloth. Any residues of grease can be washed away with warm soapy water or by using any aromatic hydrocarbon solvent (toluene, xylene). For a more environmentally friendly solvent, we recommend Limonene.

Apiezon hydrocarbon greases are not soluble in alcohols (ethanol, IPA) or ketones (acetone, MEK) so these cannot be used for cleaning.

Apiezon H grease works when you want it to, but is easily removed when you don't.

Shelf life

The shelf life of Apiezon H grease is ten years from date of manufacture, providing the product is in the original unopened packaging and has been stored at ambient (10 to 30°C) temperature.

Industry approvals

Apiezon H grease is extensively used in a wide variety of applications and industries. It has gained prestigious approvals from British Aerospace, the European Space Agency, Matra Marconi and NASA.

Apiezon H grease has been approved by NASA as the only material suitable for lubricating the gold-plated threads of small variable capacitors required to operate under high vacuum from -65°C to +125°C to prevent galling.