

# F22 Apiezon® Waxes

Apiezon Waxes Technical Data	Wax W40	Wax W100	Wax W	Compound Q
Approximate softening point, °C	45	55	85	45
Temperature for application, °C	45-50	80	100	Ambient
Maximum temperature for use, °C	40	50	80	30
Specific gravity at 20°C/15.5°C	1.017	1.567	1.055	
Specific gravity at 30°C/15.5°C	1.010	1.561	1.048	
Average molecular weight	1140	1160	1214	
Coefficient of expansion per °C over 20°C - 20°C	0.00063	-	0.00062	
Thermal conductivity Btu. in/ft <sup>2</sup> h °F w/m °C	1.23 0.177	1.18 0.170	1.31 0.189	
Specific heat at 25°C, cal/g Joule/g	0.51 2.1	0.70 2.9	0.43 1.8	
Loss tangent	0.015	0.016	0.015	
Permittivity	2.9	2.7	2.8	
Volume resistivity, ohm/cms	5.055x10 <sup>15</sup>	1.64x10 <sup>15</sup>	6.31x10 <sup>15</sup>	

High vacuum joints of a more permanent nature, not required to be movable, are best sealed with one of the Apiezon waxes rather than a grease. Three grades of wax are available, all basically similar, but differing in their hardness and softening points, from hard Wax W, softening at 80° to 90° C to relatively soft Wax W40, softening at 40°C. Wax W would be chosen for sealing most joints. A softer grade is used where the lower softening point makes application easier or where the softer wax is desirable because of probable vibration of the joint.

## Apiezon Wax W40

Softer than W and W100, Wax W40 was developed for applications where it is required to flow the sealing medium into or around a joint, but, at the same time, the temperature of the apparatus must be kept as low as possible and hence a harder wax cannot be used. Occasions for such a wax arise where the glass of the apparatus is liable to crack if heated.

Since Wax W40 is designed to flow at temperatures of 40° to 50°C, it cannot be used for apparatus likely to warm up above about 30°C. Estimated vapor pressure is  $7 \times 10^{-8}$  torr at 20° C.

## Apiezon Wax W100

This wax is softer than Wax W and softens between 50° to 60°C. It is used where a wax seal is needed, but where the softer wax will reduce the danger of a joint cracking if the parts are subject to vibration. The safe working temperature for Wax W100 is obviously lower than for Wax W and is about 50°C. Estimated vapor pressure is  $6 \times 10^{-9}$  torr at 20°C.

## Apiezon Wax W

The highest melting of three waxes, Apiezon Wax W softens between 80° to 90°C and is particularly suitable for sealing joints which may become warm in operation. Wax W should be heated to about 100° C for ease of application. Estimated vapor pressure is  $6 \times 10^{-9}$  at 20°C.

## Sealing Compound Q

Sealing Compound Q is a putty-like substance. It is a relatively low cost, extremely versatile sealing medium used for a great many purposes in vacuum work where not too low a vapor pressure is required (vapor pressure at 20°C is approximately  $1 \times 10^{-4}$  torr). Thus Compound Q is used to seal joints and fill holes and gaps on the rotary pump side of the system. It is suitable for sealing around the edges of flat unground joints as in

testing operations where it is necessary to blank off a part of the apparatus temporarily. A further example of its use is in sealing glass cylinders to metal plates, as is often done to produce temporary vacuum enclosures. Sealing Compound Q is sufficiently firm at room temperature to remain in position, yet is sufficiently soft to allow ease of moulding by hand and can be readily removed when required.

### Removal of Greases / Waxes

Apiezon Greases and Waxes can be removed by the following hydrocarbon solvents:

- Carbon Disulphide • Mineral Spirits • Benzene • Carbon Tetrachloride
- Trichloroethylene • Kerosene • Toluene • Xylene

### Apiezon Products: Health and Safety

Apiezon products have been widely and safely used in vacuum distillation apparatus in both industry and laboratories for a number of years. As a result they should not present a health hazard assuming normal standards of industrial hygiene are followed in their handling.

All Apiezon products are based on petroleum products of a low order of acute toxicity, however, certain individuals develop a rash after repeated contact. Therefore, we recommend gloves be worn to handle Apiezon. If Apiezon material is inadvertently in contact with the skin, wipe the area carefully then cleanse thoroughly using a mild soap.

Should any Apiezon products be heated for application, vent the fumes and avoid breathing the warm vapors.

In terms of explosion and fire, Apiezon products are considered non-hazardous.

The information contained in this publication is, to the best of our knowledge, true and accurate. Since the conditions of use are beyond our control, no warranty is given or is to be implied with respect to recommendations or suggestions which may be made or that any use will not infringe upon any patent.

Part No.	Description	Price each.
AP-W40	Apiezon W40 Wax, 250g. can	
AP-W100	Apiezon W100 Wax, 250g. can	
AP-W	Apiezon W Wax, 500g sticks	
AP-Q	Apiezon sealing cmpd. Q, 1 kg can	