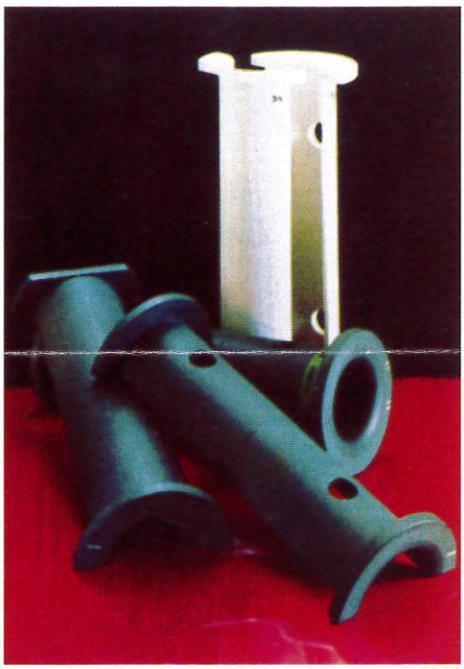
THE NEW ADVANCED BEARING MATERIAL

Vesconite Hilube

VESCO PLASTICS

- Built-in lubrication
- Ultra long life
- Lowest maintenance

Vesconite Hilube - Ideal for high loads with precision clearances in dirty or wet conditions



Case Study
Motor Axle Bush for Underground Battery Locos

Originally gunmetal bronze bushes used, with wear life of 2 - 4 months. When wet conditions encountered, failures occurred within weeks. Bronze bush wear leads to accelerated wear of axle, motor pinion and drive gear, sometimes leading to expensive motor damage.
Vesconite Standard bushes introduced in the 1970's proved a major advance, giving over twice the life of bronze.
Vesconite Hilube bushes, first used in 1990, have performed exceptionally well. They outlast bronze 10 to 20 times and operate for months without seizing if lubrication is neglected.
OEM now specifies Vesconite Hilube because of extended wear life, negligible shaft damage, maintenance savings and greatly reduced downtime.

An Exceptional Bearing Material

Developed to solve wear problems in unlubricated and dirty applications, Vesconite Hilube is a premium long life, low maintenance plain bearing material which also gives outstanding performance when lubricated.

Vesconite Hilube is compounded from an advanced engineering thermoplastic incorporating an effective internal lubricant.

It has a very low dynamic friction (approaching that of PTFE) and an even lower static friction. The low static friction means no stick-slip problems in applications with intermittent motion.

Major Advance

Introduced to take over from Vesconite Standard in dry running situations and when relatively high loads and sliding speeds apply, Vesconite Hilube has outperformed all expectations. With half the friction, it is a major advance, offering many times the wear life. It also shows exceptionally low wear rates when lubricated, whether this occurs at fitting only or regularly.

Outperforms Conventional Materials

Vesconite Hilube overcomes the limitations of metallic bearing materials and conventional engineering plastics. Vesconite Hilube combines a load bearing capacity higher than white metal (babbitt) with more than ten times the wear life of bronze in poorly lubricated or dirty conditions. Its self-lubricating properties are far superior to nylon. But unlike nylon based products, Vesconite Hilube does not swell in water or in humid conditions. For more details request our **Comparisons with Other Bushing Materials** chart.

User Friendly

Proven in numerous industrial trials, Vesconite Hilube is ideal for carrying high loads with precision clearances. Insensitive to lubrication lapses, dirty, wet or corrosive conditions, it is the user-friendly bearing material for the 1990's.

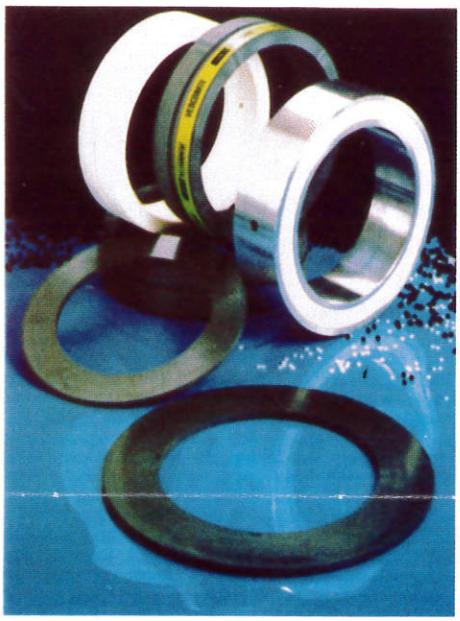
Long Life - with little or no grease

Extended wear life is crucial. In the 1960's nylon was an improvement upon bronze in many plain bearing applications. In the 1970's Vesconite Standard was a development crucial to reducing maintenance. It proved a great advance on nylon and bronze, and improved upon white metal in many applications. Vesconite Hilube is the tribological breakthrough of the 1990's, with up to 5 times the wear life of Vesconite Standard. With little or no grease, it gives many times the wear life of metal bushes.

Vesconite Hilube Exceptionally low friction with no stick-slip Dynamic friction goes as low as 0.08

Much lower friction than

- Bronze
- Nylon
- Acetal
- Oil filled nylon



Underground Winch Bearings
Vesconite Hilube and Vesconite Standard bearings resist dirt and irregular lubrication encountered in underground winches

Low Friction

The dynamic and static unlubricated friction of Vesconite Hilube against steel goes as low as 0.08 - similar to glass and graphite filled PTFE and one third that of nylon.

The dynamic friction co-efficient of Vesconite Hilube remains constant over long periods of operation, unlike many so-called low friction materials where the friction co-efficient starts off low but rises steadily. Vesconite Hilube's friction remains low even with a rise in temperature. It declines to its lowest at 60°C (140°F).

High Load Strength

Vesconite Hilube shows very low creep rates under load and has a high fatigue strength. The recommended maximum design load for static and intermittent motion is 30 MPa (300kg/cm^2, 4250 psi), much higher than the design limit for white metal, nylon and glass filled PTFE.

The load carrying capacity of Vesconite Hilube is not affected by water or humidity. This is a major problem for nylons which soften in moist environment and lose up to two-thirds of their strength. Moisture increases the wear rate of nylons and leads to creep when under load.

Vesconite Hilube has proved particularly superior in high load applications.

No Water Swell

Vesconite Hilube when fully saturated with water - a process which takes many months - absorbs less than 0,5%. This leads to a linear swell of less than 0,07%, which in most applications can be ignored.

In comparison nylons absorb moisture by as much as 9% of their mass, causing up to 3% swell and a critical loss of clearance - often leading to seizure.

Dimensional Stability

Vesconite Hilube has a comparatively low coefficient of thermal expansion. The thermal expansion is one third less than nylon and acetal, and 4 times that of bronze.

When replacing metal parts, Vesconite Hilube requires only slightly more clearance. No allowance needs to be made for moisture changes. This is a critical advantage, as the most common reasons for the failure of polymer bearings are thermal expansion and water swell.

Temperature Limits

Vesconite Hilube melts at 260°C (500°F) - high for a thermoplastic and similar to white metal.

Vesconite Hilube may be used continuously at 100°C (212°F) in dry applications, and for short periods at higher temperatures. Load limits should be reduced to half when operating above 80°C (176°F). Consult an accredited Vesconite Hilube distributor for applications where temperatures may exceed 100°C (212°F).

Production Range

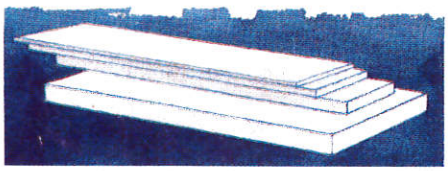
Readily available ex stock, request the Vesconite Hilube Production List for full details.

Solid Rods

Stocked from 8 to 150mm (0.3" - 6") diameter.

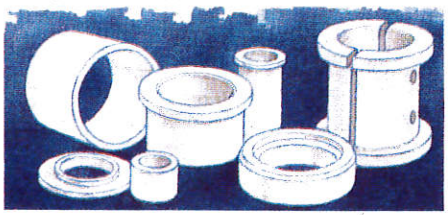
Bushing (Tubes)

Stocked from 20 to 480mm (¾" - 19") diameter in standard lengths of 1 m (39½") Lengths up to 3 m (118") may be produced to order.



Plates (Slabs)

Stocked in standard sizes of 1000 x 200 mm - (39½" x 7 ¾") in thicknesses from 3 to 50 mm (0.118" - 2")



Finished Parts and Custom Components

Ready-to-fit machined bushes are stocked for a range of shaft sizes.
To reduce costs on quantity orders, VescoPlastics custom moulds and machines components to engineering tolerances.
Request our **Precision Machined Wear Parts** pamphlet, or call us with details of your requirements.

Typical Applications

- Heavy transport suspension bushes
- Earth moving equipment
- Hydraulic and pneumatic equipment
- Textile industry
- Brick making machinery
- Cement plant machinery
- Bottling plant machinery
- Conveyor roller bushes
- Carrier chain bearings
- Butterfly valves
- Abattoirs
- Mining, etc.

Load and Speed Limits

The product of load and bearing surface speed - commonly called the PV limit (pressure x velocity) - is often given as a design guide. The PV limit of Vesconite Hilube is over four times that of nylon and twice that of Vesconite Standard. PV limits are usually determined in laboratories and are not always applicable to field applications.

Many factors affect PV limits, particularly lubrication, load and speed. For a given load, the bearing surface speed may be greatly increased with improved lubrication and cooling through circulation, as the index shows:

	PV Index
Dry - no lubrication	1
Greased on assembly	2
Periodic lubrication (oil, grease)	4
Circulating oil lubrication	8
Circulating water lubrication	>40

Less Wear to Metal Mating Parts

Vesconite Hilube reduces the wear experienced by metal mating parts by over 90%. Mating part wear is a particular problem with metallic and nylon based bearings, especially when using unhardened metal shafts.
This valuable benefit alone justifies the changeover to Vesconite Hilube when dealing with expensive shafts.

Chemical Resistance

Vesconite Hilube is resistant to organic solvents, petrol, oils and dilute acids. It has a limited resistance to concentrated strong acids and alkalies. Lengthy immersion in boiling water should be avoided. Request the **Vesconite Hilube Chemical Resistance Data Sheet.**

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