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W

Wax (petroleum) :

Any of a range of relatively high-molecular-weight hydrocarbons (approximately C16 to C50), solid at room temperature, derived from the higher- boiling petroleum fractions.

There are three basic categories of petroleum-derived wax:

1. paraffin (crystalline)
2. microcrystalline
3. petrolatum

Paraffin waxes are produced from the lighter lube oil distillates, generally by chilling the oil and filtering the crystallized wax; they have a distinctive crystalline structure, are pale yellow to white (or colorless), and have a melting point range between 48°C (118°F) and 71°C (160°F). Fully refined paraffin waxes are dry, hard, and capable of imparting good gloss.

Microcrystalline waxes are produced from heavier lube distillates and residua (see bottoms) usually by a combination of solvent dilution and chilling. They differ from paraffin waxes in having poorly defined crystalline structure, darker color, higher viscosity, and higher melting points — ranging from 63°C (145°F) to 93°C (200°F). The microcrystalline grades also vary much more widely than paraffins in their physical characteristics: some are ductile and others are brittle or crumble easily. Both paraffin and microcrystalline waxes have wide uses in food packaging, paper coating, textile moisture proofing, candle-making, and cosmetics.

Petrolatum is derived from heavy residual lube stock by propane dilution and filtering or centrifuging. It is microcrystalline in character and semi- solid at room temperature

There are also heavier grades for industrial applications, such as corrosion preventives, carbon paper, and butcher's wrap. Traditionally, the terms slack wax, scale wax, and refined wax were used to indicate limitations on oil content. Today, these classifications are less exact in their meanings, especially in the distinction between slack wax and scale wax.

Wear :

The removal of materials from surfaces in relative motion.

1. abrasive wear: removal of materials from surfaces in relative motion by cutting or abrasive action of a hard particle (usually a contaminant).
2. adhesive wear (scuffing): removal of materials from surfaces in relative motion as a result of surface contact
3. corrosion wear: removal of materials by chemical action.

Wear inhibitor :

An additive which protects the rubbing surfaces against wear, particularly from scuffing, if the hydrodynamic film is ruptured.

White oil :

Highly refined straight mineral oil, essentially colorless, odorless, and tasteless. White oils have a high degree of chemical stability. The highest purity white oils are free of unsaturated components (see unsaturated hydrocarbon) and meet the standards of the United States Pharmacopeia (USP) for food, medicinal, and cosmetic applications. White oils not intended for medicinal use are known as technical white oils and have many industrial applications — including textile, chemical, and plastics manufacture — where their good color, non-staining properties, and chemical inertness are highly desirable.

Worked Penetration :

Highly refined straight mineral oil, essentially colorless, odorless, and tasteless. White oils have a high degree of chemical stability. The highest purity white oils are free of unsaturated components (see unsaturated hydrocarbon) and meet the standards of the United States Pharmacopeia (USP) for food, medicinal, and cosmetic applications. White oils not intended for medicinal use are known as technical white oils and have many industrial applications — including textile, chemical, and plastics manufacture — where their good color, non-staining properties, and chemical inertness are highly desirable.

Worked Penetration :

The penetration of a sample of lubricating grease immediately after it has been brought to 77°F and then subjected to 60 stokes in a standard grease worker. This procedure and the standard grease worker are described in ASTM Method D 217.

X

Xylene :

Aromatic hydrocarbon, C₈H₁₀, with three isomers plus ethylbenzene.

It is used as a solvent in the manufacture of synthetic rubber products, printing inks for textiles, coatings for paper, and adhesives, and serves as a raw material in the chemical industry.

Y

Yield point :

The minimum force required to produce flow of a plastic material.

Z

ZDDP - ZnDTP (zinc dialkyl dithiophosphate or zinc diaryl dithiophosphate) :

Widely used as an anti-wear additive in engine oils to protect heavily loaded parts, particularly the valve train mechanisms (such as the camshaft and cam followers) from excessive wear. It is also used as an anti-wear agent in hydraulic fluids and certain other products. ZDDP is also an effective oxidation inhibitor. Oils containing ZDDP should not be used in engines that employ silver alloy bearings. All car manufacturers now recommend the use of dialkyl ZDDP in engine oils for passenger car service (PCMO).

ZN/P curve :

General graphic representation of the equation: $\mu = (f) \text{ ZN/P}$ Where μ (the coefficient of friction in a journal bearing) is a function (f) of the dimensionless parameter ZN/P, (viscosity x speed)/pressure. This is the fundamental lubrication equation, in which the coefficient of friction is the friction per unit load, Z the viscosity of the lubricating oil, N the rpm of the journal, and P the pressure (load per unit area) on the bearing. The ZN/P curve illustrates the effects of the three variables (viscosity, speed, and load) on friction and, hence, on lubrication.



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