



SILK ROAD

株式会社シルクロード貿易商会

SILKROAD Trading Co. Ltd.

# PETROLEUM DERIVATIVES

## 石油誘導体



### PARAFFINE WAX

Semi Refined Paraffine Wax

CHARACTERISIC	RESULT	METHOD
Colour(Iovibond)	0.3 -0.5 Y	Method (2"cell)
Congeaing point	62 – 68 C	ASTM D-938
Melting point	62 – 65 C	ASTM D-87
Oil Content	3 – 5 %	ASTM D-721
Kinematic Viscosity	6 –7.5CST	ASTM D-445
Density at 100 C	760 -770gr/cm <sup>3</sup>	ASTM D-1298
Flash point	MIN.230C	ASTM D-92

### ANALYSIS REPORT

A - SLACK WAX10

CHARACTERISIC	Unit	Typical	Test method
Kinematic viscosity@100c	cSt	4	ASTM: D-445
Flash point	-	200	ASTM: D-92
Specific gravity 25 C/25 C	WT%	0.840	ASTM: D-190
Oil content	-	35	ASTM: D-721
Color	-	1	ASTM: D-1500



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# SLACK WAX

スラックワックス



## ANALYSIS REPORT A - SLACK WAX10

CHARACTERISIC	Unit	Typical	Test method
Kinematic viscosity@100c	cSt	8	ASTM: D-445
Flash point	C	265	ASTM: D-92
Specific gravity 25 C/25 C	-	0.855	ASTM: D-190
Oil content	WT%	Max 35	ASTM: D-721
Color	-	2.0	ASTM: D-1500
Drop Melting point	C	65	ASTM: D-127

## ANALYSIS REPORT B - SLACK WAX

TEDT	METHOD	UNIT	RESULT
Oil Content	ASTMD-721	%W	20-35
Congelin point (c)	ASTMD-938	-	20-35
Kinematic vidcosity At 100 C	ASTMD-445	CST	62.68
Density at 70 C	ASTMD1298	KG/M <sup>3</sup>	810-850



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# RPO

Aromatic Rubber Process Oil

芳香族ゴムプロセスオイル



## ***RPO ( Furfural Extract )***

**RPO** is fully rich aromatic by-products from solvent extracting process to modify physical properties of the vulcanization and to reduce the cost of the finished product.

## ***APPLICATION***

As component in rubber formulations and manufacturing of products such as automobile tiers, rubber shock absorbers, footwear, industrial hoses, wire and cable coverings, flooring materials and carrier fluid or solvent in manufacture of adhesives, sealants, polishes and carbon black.

## ***SPECIFICATIONS***

Low staining  
Low volatility  
Good solubility properties.  
Elastomeric compatibility.





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# RPO

Aromatic Rubber Process Oil

## 芳香族ゴムプロセスオイル

What is Aromatic Rubber Process Oil?

The first characteristics of aromatic hydrocarbons are the presence of the double guaranteed combine ring carbon structure. Aromatic extracts procured from chosen refineries and appropriately homogenized to satisfy tight specifications, are used for combination batches to manufacture Tyres, calendared and moulded sheets, Tread rubber etc

Aromatic Oil : It is Aromatic grade of rubber process oil, dark in colour. it's a primary aromatic hydrocarbon, blended with carefully selected aromatic extracts. Witprol A-711 is appropriate To be employed in the manufacture of automobile tyres, beltings, mats, shaped rubber components Etc. it's good solvency & is compatible with wide range of rubbers like NR, SBR and PBR.

Witprol A-25 could be a low viscosity oil that reduces viscosity of compound & improve processing Rubber process oil (**RPO**) are used during mix of rubber compounds. These help in improving the dispersion of fillers and flow characteristics of the compound during any processing. IPOL Rubber process oil are specially developed taking into thought the kind of rubber and therefore the end product applications.

- High Viscosity **RPO**
- Low Viscosity **RPO**
- DAE Aromatic **RPO**(Distillate Aromatic Extract)
- TDAE Aromatic **RPO** ( Treated Distillate Aromatic Extract )
- RAE Aromatic **RPO** ( Residual Aromatic Extract )
- TRAE Aromatic **RPO** ( Treated Residual Aromatic Extract )
- Extract Aromatic **RPO**
- Mid Extract Solvate Aromatic **RPO** (MES)

### • 芳香族ゴムプロセスオイルとは何ですか？

芳香族炭化水素の最初の特徴は、二重に保証された結合環炭素構造の存在です。厳選された製油所から調達され、厳しい仕様を満たすために適切に均質化された芳香族抽出物は、タイヤ、カレンダーおよび成形シート、トレッドゴムなどを製造するための組み合わせバッチに使用されます

アロマオイル：それは、色が濃いアロマグレードのゴム製プロセスオイルです。厳選された芳香族抽出物とブレ



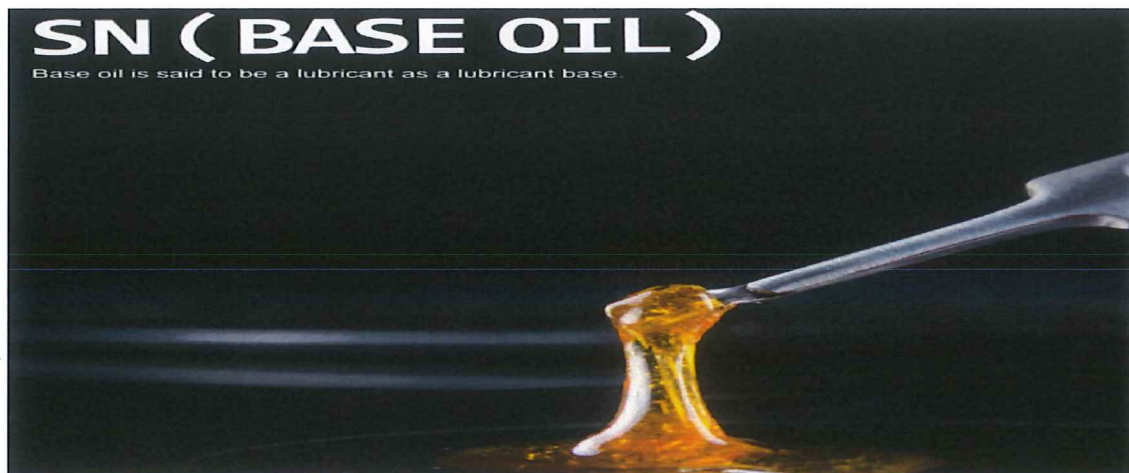
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ンドされた主要な芳香族炭化水素です。 **Witprol A-711** は適切です。自動車タイヤ、ベルト、マット、成形ゴム部品などの製造に使用できます。溶解性が高く、**NR**、**SBR**、**PBR** などの幅広いゴムと互換性があります。

**Witprol A-25** は、コンパウンドの粘度を下げて処理を改善する低粘度オイルである可能性があります。ゴムコンパウンドの混合中には、ゴムプロセスオイル (RPO) が使用されます。これらは、充填剤の分散と処理中のコンパウンドの流動特性を改善するのに役立ちます。 **IPO** ゴムプロセスオイルは、ゴムの種類、したがって最終製品の用途を考慮して特別に開発されました。

- 高粘度 RPO
- 低粘度 RPO
- DAE** 芳香族 RPO (留出芳香族抽出物)
- TDAE** 芳香族 RPO (処理済み留出物芳香族抽出物)
- RAE** 芳香族 RPO (残留芳香族抽出物)
- TRA** 芳香族 RPO (処理された残留芳香族抽出物)
- 芳香族 RPO を抽出する
- ミッドエキストソルベートアロマティック RPO (MES)



Base oil is said to be a lubricant as a lubricant base. The most important component of the lubricant is the volumetric base oil, and averaged over 95% of the lubricant's formulation on average. In some lubricants (oil and compressor oils), 99% of the oil is the base oil, and only 1% of it is an additive. Base oils can be obtained from oil or non-oil sources. Most of the basic oil in the world comes from the refining of crude oil. The major components of the base oils are paraffinic, naphthenic and aromatic compounds.



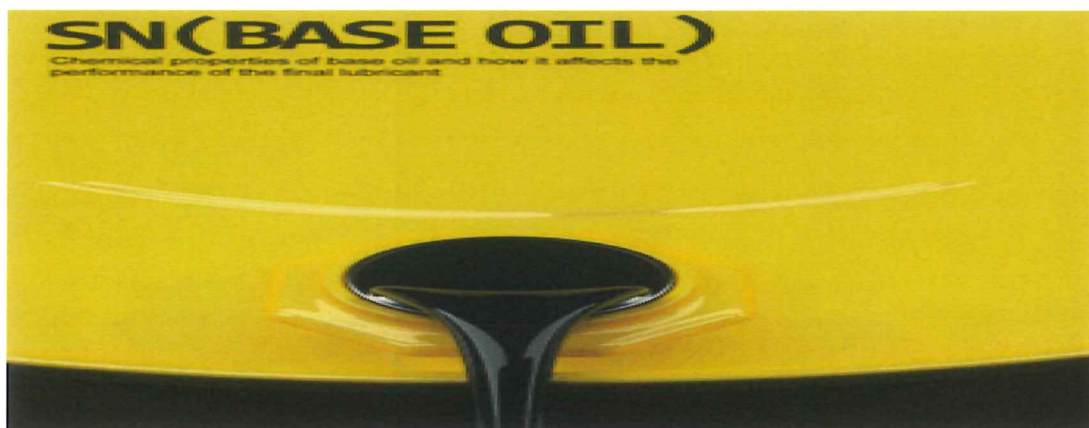


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## SN ( Base oil )

**SN** is highly refined paraffinic oils that are processed to meet high saturation and low sulphur concentration. These products have good solubility characteristics for additives in product formulations.



### *Chemical properties of base oil and how it affects the performance of the final lubricant*

- 1- Volatility: Low oil, oil thickening and sediment formation
2. Surface activity: Foaming, air release, emulsion formation and pressure
3. Oxidation: formation of sediment, oil thickening, sludge formation and corrosion of metals
4. Viscosity: low temperature fluidity, energy wasting, abrasion and cooling protection
5. Solubility: engine cleanliness, seals compatibility, process applications and formulation stability.

#### **Base oil types**

In general, the base oil is divided into three general categories of mineral, natural and synthetic.

##### 1. Base mineral oils:

The base oil obtained from crude oil is called the mineral base oil, which consists of two groups of paraffinic and naphthenic oils derived from crude petroleum refining. Paraffinic oils are composed of normal hydrocarbons (right chains) and iso-hydrocarbons (branched). But naphthenic oils are composed of one or more looped, steamed hydrocarbons. Paraffinic oils have the following properties in comparison to naphthenic oils:

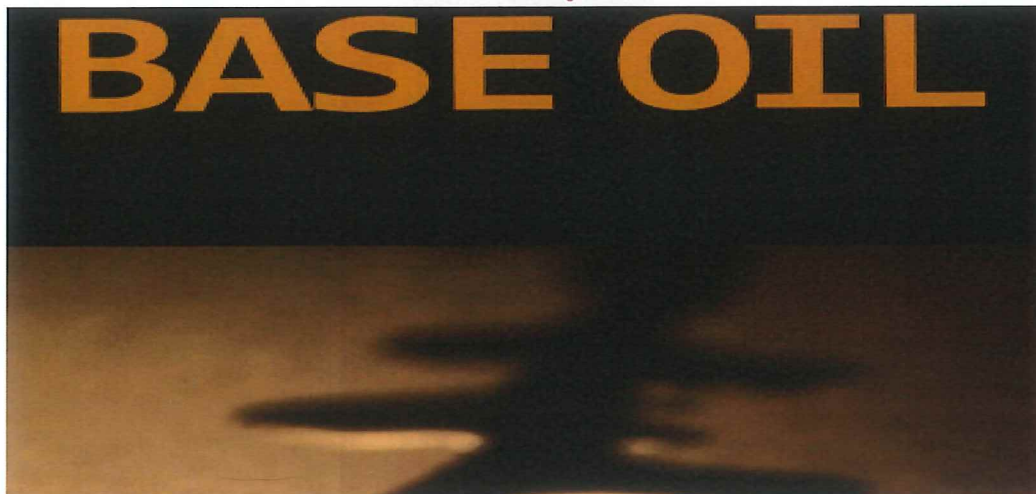
Higher temperature  
Less specific gravity  
Higher viscosity index  
Less solubility  
High resistance to oxidation  
Low volatility and consequently higher ignition point

Nutanic oils are generally used for low temperature ranges and when low dropping points are needed. Specially used in hydraulic oils, coolants, rubber oils, metalworking and in cylinder lubricants for large engines and lubricants.



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### **Natural Base Oils**

Over the past two decades, due to increased environmental considerations, attention has been paid to natural lubricants. These oils come from plant sources. The main components of the natural oils are a mixture of triglycerides with acid-bearing carboxylic acid portions with long chains. These carboxylic acids are known as fatty acids. In general, straight chains have a length of 8 to 22 carbon atoms, which may be completely droplet, or have one or more unbound transplants on their chains. Vegetable oils can be used in their natural form for lubrication. The lubricating power of vegetable oils is much more than mineral oils. The combustion point of vegetable oils is much higher than mineral oils (about 326 ° C). But these oils do not have sufficient oxidation stability in their natural form. Other undesirable properties of vegetable oils are the point of their high loss, which can be solved by adding suitable additives.

### **Synthetic Base oils**

Synthetic or synthetic

oils are oils that are synthesized or made by controlling, combining one or more organic components of low molecular weight. This combination, which is carried out in controlled physical and chemical conditions, makes the oil produce certain properties that were previously intended. Mineral oils, unlike advantages such as availability and lower relative prices, have disadvantages, such as oxidation and loss of viscosity at high temperatures, explosive exposure to strong oxidizing agents and solidification at low temperatures. This has led to the expansion of the use of synthetic oils that can withstand a significant amount of temperature and pressure without altering the structure and at the same time reduce the risk of fire. However, the use of synthetic oils is logical when:

- The use of synthetic oils reduces operating costs so much that it can compensate for high purchasing costs.
- The use of synthetic oils will solve the problem with the use of mineral oils. Like operating conditions at very high or very low temperatures.





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# GREASE グリース



**Grease** is a semisolid lubricant.

**Grease** generally consists of soap emulsified with mineral or vegetable oil. The characteristic feature of **Greases** is that they possess a high initial viscosity, which upon the application of shear, drops to give the effect of an oil-lubricated bearing of approximately the same viscosity as the base oil used in the **Grease**. This change in viscosity is called shear thinning.

**Grease** is sometimes used to describe lubricating materials that are simply soft solids or high viscosity liquids, but these materials do not exhibit the shear-thinning properties characteristic of the classical **Grease**. For example, petroleum jellies such as Vaseline are not generally classified as **Greases**.

**Greases** are applied to mechanisms that can only be lubricated infrequently and where a lubricating oil would not stay in position. They also act as sealants to prevent ingress of water and incompressible materials.

**Grease**-lubricated bearings have greater frictional characteristics due to their high viscosity.

グリースは半固体の潤滑剤です。

グリースは通常、鉱物油または植物油で乳化した石鹸で構成されています。グリースの特徴は、初期の粘度が高く、剪断力が加わると低下し、グリースで使用されている基油とほぼ同じ粘度の油潤滑ベアリングの効果が得られることです。この粘度の変化は、剪断減粘と呼ばれます。

グリースは時々、単に柔らかい固体または高粘度の液体である潤滑材料を説明するために使用されますが、これらの材料は、従来のグリースに特徴的なずり減粘特性を示しません。たとえば、ワセリンなどのワセリンは一般にグリースとして分類されません。

グリースは、ごくまれにしか潤滑されず、潤滑油が所定の位置に留まらないような機構に適用されます。また、水や非圧縮性材料の侵入を防ぐシーラントとしても機能します。

グリース潤滑ベアリングは、粘度が高いため摩擦特性が優れています。





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# ENGINE OIL エンジンオイル



**Motor oil, engine oil, or Engine lubricant** is any of various substances comprising base oils enhanced with particularly antiwear additive plus detergents, dispersants and, for multi-grade oils viscosity index improvers.

**Motor oil** is used for lubrication of internal combustion engines. The main function of **Motor oil** is to reduce friction and wear on moving parts and to clean the engine from sludge (one of the functions of dispersants) and varnish (detergents). It also neutralizes acids that originate from fuel and from oxidation of the lubricant (detergents), improves sealing of piston rings, and cools the Engine by carrying heat away from moving parts.

In addition to the basic constituents noted in the preceding paragraph, almost all lubricating oils contain corrosion (GB: rust) and oxidation inhibitors.

**Motor oil** may be composed of only a lubricant base stock in the case of non-detergent oil, or a lubricant base stock plus additives to improve the oil's detergency, extreme pressure performance, and ability to inhibit corrosion of Engine parts.

**Motor oils** today are blended using base oils composed of petroleum-based hydrocarbons polyalphaolefins (PAO) or their mixtures in various proportions, sometimes with up to 20% by weight of esters for better dissolution of additives.

モーターオイル、エンジンオイル、またはエンジン潤滑剤は、特に耐摩耗添加剤と洗剤、分散剤、およびマルチグレードオイルの粘度指数向上剤で強化されたベースオイルを構成するさまざまな物質です。

モーターオイルは、内燃機関の潤滑に使用されます。モーターオイルの主な機能は、摩擦と可動部品の摩耗を減らし、スラッジ（分散剤の機能の 1 つ）とワニス（洗剤）からエンジンをきれいにすることです。また、燃料や潤滑剤（洗剤）の酸化に起因する酸を中和し、ピストンリングのシーリングを改善し、可動部品から熱を運んでエンジンを冷却します。前の段落で述べた基本的な成分に加えて、ほとんどすべての潤滑油には腐食（GB：錆）および酸化防止剤が含まれています。

モーターオイルは、非洗剤油の場合は潤滑剤ベースストックのみで構成することも、潤滑剤ベースストックと、オイルの洗浄力、極圧性能、およびエンジン部品の腐食を抑制する能力を向上させる添加剤で構成することもできます。

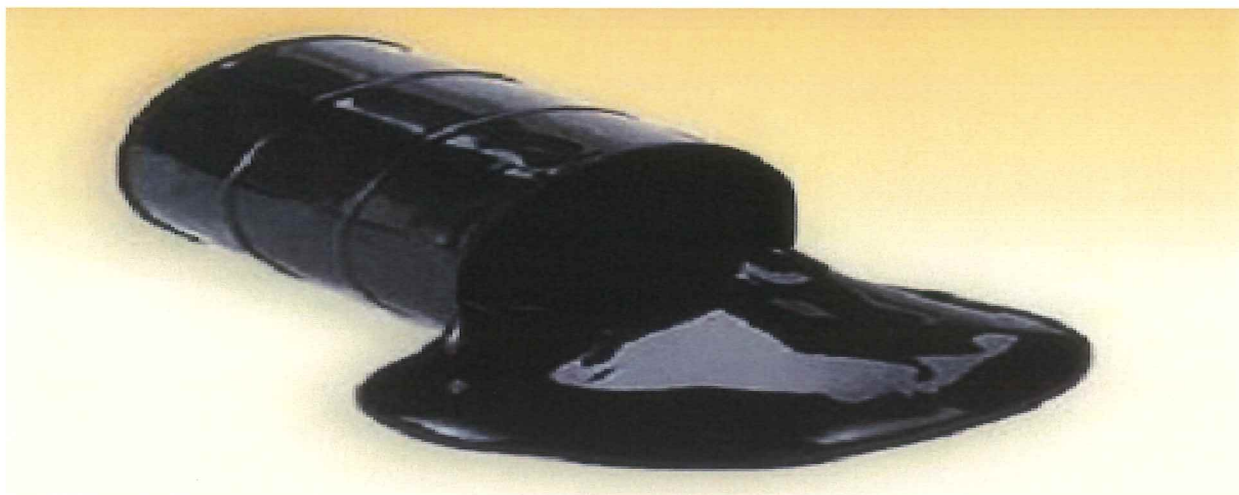
今日のモーターオイルは、石油ベースの炭化水素であるポリアルファオレフィン（PAO）またはそれらの混合物をさまざまな比率で構成した基油を使用してブレンドされています。



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# TAR タール



**Tar** is a dark brown or black viscous liquid of hydrocarbons and free carbon, obtained from a wide variety of organic materials through destructive distillation.

**Tar** can be produced from coal, wood, petroleum, or peat. Production and trade in pine-derived **Tar** was a major contributor in the economies of Northern Europe and Colonial America. Its main use was in preserving wooden sailing vessels against rot.

The largest user was the Royal Navy of the United Kingdom. Demand for **Tar** declined with the advent of iron and steel ships. It is hot to the touch, and can cause burns if one comes in contact with the substance.

**Tar**-like products can also be produced from other forms of organic matter, such as peat. Mineral products resembling **Tar** can be produced from fossil hydrocarbons, such as petroleum. Coal **Tar** is produced from coal as a byproduct of coke production.

タールは、炭化水素と遊離炭素の暗褐色または黒色の粘性液体で、さまざまな有機物から破壊蒸留によって得られます。タールは、石炭、木材、石油、泥炭から生産できます。マツ由来のタールの生産と貿易は、北ヨーロッパと植民地アメリカの経済の主要な貢献者でした。その主な用途は、木製帆船の腐敗防止です。

最大のユーザーはイギリスの海軍でした。タールの需要は、鉄鋼船の出現により減少しました。触ると高温になり、物質に触れると火傷をする可能性があります。

タールのような製品は、泥炭などの他の形態の有機物からも製造できます。タールに似た鉱物製品は、石油などの化石炭化水素から製造できます。コールタールは、コークス生産の副産物として石炭から生産されます。





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# ANTIFREEZE-不凍液



An **Antifreeze** is an additive which lowers the freezing point of a water-based liquid.

An **Antifreeze** mixture is used to achieve freezing-point depression for cold environments. Common **Antifreezes** increase the boiling point of the liquid, allowing higher coolant temperature.

Because water has good properties as a coolant, water plus **Antifreeze** is used in internal combustion engines and other heat transfer applications, such as HVAC chillers and solar water heaters.

The purpose of **Antifreeze** is to prevent a rigid enclosure from bursting due to expansion when water freezes.

Commercially, both the *additive* (pure concentrate) and the *mixture* (diluted solution) are called **Antifreeze**, depending on the context. Careful selection of an **Antifreeze** can enable a wide temperature range in which the mixture remains in the liquid phase, which is critical to efficient heat transfer and the proper functioning of heat exchangers.

不凍液は、水性液体の凝固点を下げる添加剤です。

不凍液混合物は、寒い環境での氷点降下を達成するために使用されます。一般的な不凍液は、液体の沸点を上げ、クーラント温度を高くします。

水は冷却剤として優れた特性を備えているため、水と不凍液は、内燃エンジンや、HVAC チラーや太陽熱温水器などのその他の熱伝達アプリケーションで使用されます。

不凍液の目的は、水が凍結したときに、膨張によって堅い管体が破裂するのを防ぐことです。

商業的には、添加剤（純粋な濃縮物）と混合物（希釈した溶液）の両方が、状況に応じて不凍液と呼ばれます。不凍液を注意深く選択すると、混合物が液相に留まる広い温度範囲が可能になります。これは、効率的な熱伝達と熱交換器の適切な機能にとって重要です。

## CONTACT US

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