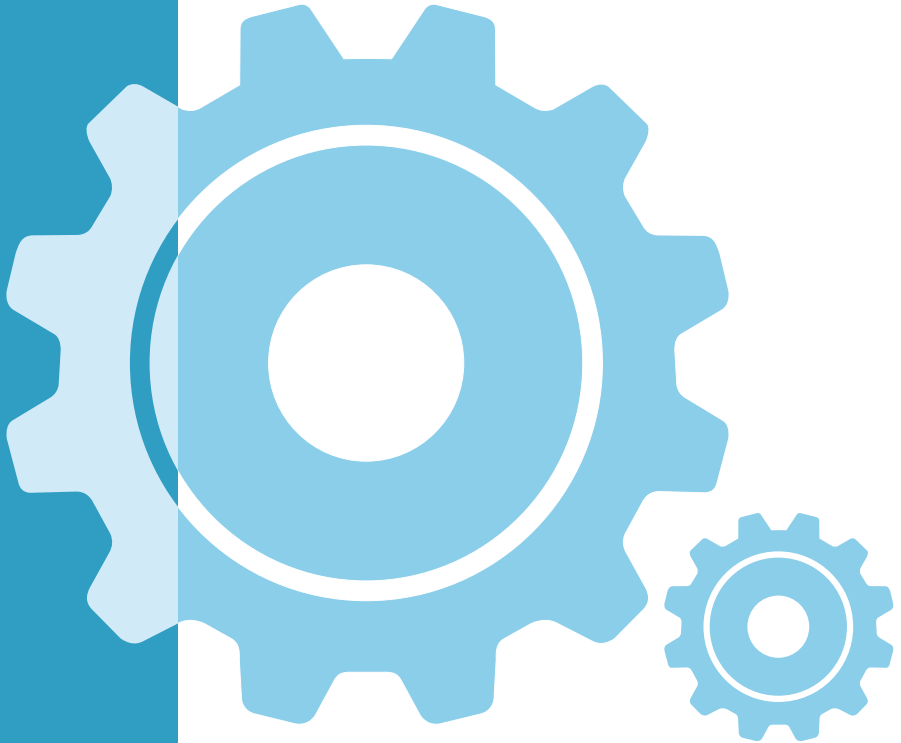




Since 1985 **SUPER**
Palco®
Advanced Lubricant Chemistry



PRODUCT CATALOGUE

INDUSTRIAL LUBRICANTS

✉ info@palco.co.in
🌐 www.palco.co.in

FROM THE DESK OF MANAGING DIRECTOR

As we reflect on our journey since the beginning of Paras Lubricants in 1985, I take immense pride in our substantial growth in stature, size, and scale. We have always believed that great companies, founded with a strong vision and built upon solid values, are the ones that thrive and live on.

We realize that with growth comes responsibility and accountability. We must manage expectations of all customers and commit to deliver superior performance each time. It is imperative that we continuously raise the bar, innovate, and reinvent ourselves. Our engineers are encouraged and supported to develop advance innovations rather than mere incremental improvements, thereby realizing our vision of being the most admired Indian Lubricant Manufacturing Company—renowned for quality products, reliable performance & exceptional service, all with a perspective of global excellence.

Today, our company operates on a much larger scale, and our business has performed well across all operating vertical, including export, supported by a robust business model. Joint ventures and subsidiaries across continents will further drive our growth and ensure long-term sustainability. However, our core focus remains on operational excellence, enhancing our capabilities, and expanding our success into new global markets.

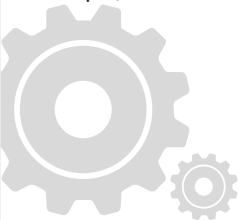
We hope you find this edition both informative and insightful, offering you a deeper understanding of the work we undertaken to meet the new generation requirements.

Warm regards

Sd/-

Paras Kumar Bansal
Managing Director

April, 2025



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METAL CUTTING COOLANTS

SOLUBLE CUTTING OIL



Since 1985 **SUPER**
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PALKUT - SL

PALKUT SL is premium quality water soluble cutting oil, specially developed to form extremely stable milky emulsion even with extreme hard water (400 ppm) leading to excellent tool life and finish, in all metal cutting operations, where cooling is more important than lubrication. It has excellent antirust and anti-froth quality and cause no corrosion of machine, work piece or tool. Do not decompose chemically; leave objectionable odour, cause discoloration and staining. This is operator friendly and economical in use.

PALKUT - SL is blended from refined mineral oil, emulsifier and other additives.

Procedure:

- ★ Dilution ratio with water varies between 5% to 10% depending on severity of machining.
- ★ While preparing emulsion always add cutting oil to water (not the other way round) to prevent inversion of the emulsion.
- ★ Clean the coolant reservoir and system periodically, recharge the system with 1% solution of coolant to be charged and circulate for at least 1 hr. and then drain completely.
- ★ Check the emulsion strength regularly and top up if necessary.

PERFORMANCE LEVEL: IS 1115-1986 specifications.

PACKING: 210L, 50L, 20L, 5L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PALKUT SL
1	Kinematic Viscosity, cSt @40°C	20
2	Flash Point, COC, °C, min.	150
3	Copper Strip Corrosion Properties	Passes
4	Cast Iron Corrosion Properties	Passes
5	pH 5% emulsion in D/W	8-9
6	Emulsion Stability (for 24 hrs.)	
	5% in tap water	Stable
	5% in 400ppm water	Stable
7	Heat Stability Properties (at 0°C to 5°C)	Passes
8	Volatile Matter @100°C for 16 hrs. % by mass, max.	20

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

SOLUBLE CUTTING OIL



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PALKUT SL PRO

PALKUT SL PRO is a superior grade soluble cutting oil blended from highly refined base oil and special additive to provide superior tool life and other benefits. It has excellent emulsion stability with hard water.

PALKUT SL PRO can be used for machining & grinding of ferrous as well as non-ferrous materials.

FEATURES & BENEFITS

- ★ Milky stable emulsion
- ★ Designed for multi-metal use
- ★ Better corrosion protection.
- ★ Readily emulsifies to form stable emulsion (oil in water type, water hardness 800 ppm) and resists bacterial growth.
- ★ Formulation is free of chlorine, phenol etc. harmful chemicals

APPLICATIONS

PALKUT SL PRO is developed with a high mineral oil content for a variety of metal cutting operations where cooling is important. This high-performance soluble oil is designed especially for general machining like turning, planning, drilling, milling of ferrous and non-ferrous metals like Aluminium. Check the emulsion strength regularly and top up if necessary.

Recommended Concentration:

Recommended Concentration: Operation	Cast iron	Mild Steel	Alloy Steel	Aluminium Alloys
Grinding & Turning	4 – 5%	3 – 5%	4 – 6%	4 – 6%
Milling, Reaming, Boring	5 – 6%	5 – 7%	5 – 8%	5 – 8%
Drilling, Tapping, Threading	5 – 6%	5 – 7%	5 – 8%	5 – 8%

Coolant Management Guidelines:

- Ensure that before charging an emulsion the machines are clean. While preparing the emulsion always add oil to water, while addition the agitator must be on. Never add water to oil.
- Check the emulsion concentration on regular basis. Maintenance of proper concentration gives satisfactory performance as well as minimize bacteria problem.
- Always ensure to maintain the pH range between 8.5 to 9.3
- The top up should be done in the form of emulsion. Never add only water or oil to the sump.
- Periodical checking of Bacterial count needs to be done. The earlier detection of bacterial count can be tackled easily by using proper additives.

METAL CUTTING COOLANTS

SOLUBLE CUTTING OIL



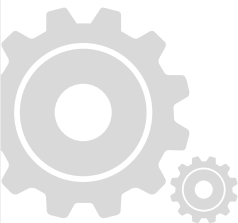
PALKUT - SL PRO

PERFORMANCE LEVEL: IS 1115-1986 specifications.

PACKING: 210L, 50L, 20L

CHARACTERISTICS			
S.NO.	PROPERTIES	TEST METHOD	PALKUT SL PRO
1	Colour, Oil	Visual	Light Brown
2	Appearance, Oil	Visual	Clear
3	Colour, Emulsion	Visual	Milky White
4	Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1a
5	Emulsion Test, 5:1 & 20:1 ratio in water of 400ppm hardness (as CaCO ₃)	IS 1448 P:68	No Oil, No cream separation
6	Emulsion Test, 5:1 & 20:1 ratio in water of 200ppm hardness (as CaCO ₃)	IS 1448 P:99	Passes (no froth)
7	Cast Iron Corrosion Test in 400ppm hard water (as CaCO ₃)	IS 1115: Appendix A	Passes
8	Thermal Stability Test	IS 1448 P:100	Passes
9	Refractometer Factor	—	1.0
10	pH, at 5% in distilled water	—	9.36
11	Emulsion Stability in 800 ppm hard water, 48 hours	Internal	Passes (No Oil or scum separation)

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

SEMI SYNTHETIC CUTTING FLUID



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PAL SS 520

Semi synthetic cutting fluid for Ferrous Alloys

It is a premium Semi-Synthetic cutting oil which forms translucent emulsion with water and provides high lubricity & excellent cooling properties to metal specimen. It has outstanding detergency & wetting properties & can be used for cast iron as well as ferrous metals apart from CNC machines. The product contains special surfactants which perform cleaning action of the machine during use & prevents accumulation of dirt, grit, grease & oil scum on the machine. This also cleans the part & removes chips & prevents them from sticking onto the metal. The product is blended with a special grade of broad-spectrum biocides which protects firm bacterial/ fungicidal growth. Thus, extends the tank life under normal operating conditions.

ADVANTAGE

- ★ Low foaming tendency.
- ★ Advanced lubricity components ensure good tool life.
- ★ Improved corrosion resistance of machine parts and machined components
- ★ Bio-stable product, long sump life and this leads to reduced maintenance cost
- ★ Operator friendly
- ★ Excellent flushing property
- ★ Suitable for both stand-alone machines and centralized tanks

APPLICATIONS

Recommended Concentration: Operation	Cast iron	Mild Steel	Alloy Steel	Other Steels
Grinding & Turning	4 – 5%	3 – 5%	4 – 6%	4 – 6%
Milling, Reaming, Boring	5 – 6%	5 – 7%	5 – 8%	5 – 8%
Drilling, Tapping, Threading	5 – 6%	5 – 7%	5 – 8%	5 – 8%

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	TEST METHOD	PAL SS 520
1	Appearance	Visual	Light Amber
2	Conc. Brix Factor		1.48
3	Density @29.5C		0.985 – 0.999
4	Emulsion appearance		Translucent
5	Cast Iron Chip Test (Break Point)		3%
6	pH (5% Emulsion)		9.24
7	Refractometer Factor		1.12

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

SEMI SYNTHETIC CUTTING FLUID



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PAL SS 540

Semi synthetic cutting fluid for Aluminium

PAL SS 540 is a high oil content semi- synthetic product specially designed for machining operations on aluminium, yellow metals, steel & other ferrous components. Apart from exclusively modified biocidal protection, the product is also fortified with superior EP/AW additives for extended tool life and excellent finish of the components. The product gives a long sump life resulting in economical usage over a long run.

PRODUCT FEATURES

- ★ Excellent lubricity, EP/AW properties.
- ★ Good surface finish and tool life
- ★ Bio-stable product giving long life
- ★ Good corrosion protection with ferrous metals
- ★ No staining on Aluminium and Aluminium alloys

APPLICATIONS

- ★ Recommended for machining operations on Aluminium, Copper and Ferrous Alloys
- ★ Suggested concentration 4 to 5% depending up on operation.
- ★ Advisable to use DM water for maximizing the sump life

PERFORMANCE LEVEL: Meets IS 1115:1986 (Reaffirmed 2013) specifications

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	TEST METHOD	PAL SS 540
1	Appearance	Visual	Bright & Clear
2	Specific Gravity @ 29.5°C	ASTM D1298	0.965
3	pH value 5 % ,100 ppm water	Internal	9.4
4	Emulsion appearance	Visual	-6
5	Cast Iron Corrosion Chip Test, 5% in 400 ppm	IP 125	Translucent
6	Refraction Index Factor,	% Brix	1.120
7	Oil Content, %	Internal	40

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

SYNTHETIC CUTTING FLUID



PAL SYNCO-100, 200

These are premium quality water-soluble oil free, fully synthetic type coolant, specially developed for use on ferrous metals only. These fluids do not undergo bacterial degradation and leave objectionable odour. Further these are non foaming, non toxic, non hazardous, thus ensuring total safety of the workmen. These are operator friendly and economical in use due to high mixing ratio and long service life.

PAL SYNCO - 100 is fortified with rust, corrosion inhibitor, bactericide, fungicide etc. It has several advantages over conventional soluble cutting oil. Recommended for machining and grinding of ferrous metals only.

PAL SYNCO - 200 contains EP additive to give high surface finish. Recommended for machining and grinding of iron, steel, non-alloyed steel and nickel-chrome steel.

Not recommended for the machining of non-ferrous metals.

Dilution ratio with water varies between 2%-3% depending upon the operation and product handled.

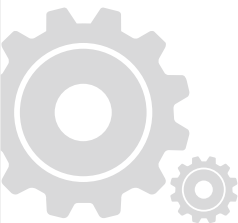
- ★ Concentrated mixture may lead to paint peel off in the machines and some discolouration of the operator's skin.
- ★ Coolant should be used only in clean circulating system.

PERFORMANCE LEVEL: IS 11186-1985(Reaffirmed 1990) specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PAL SYNCO-100	PAL SYNCO-200
1	Appearance	Green	Green
2	Solution Appearance, @2% in distilled water	Clear fluorescent	Green
3	Cast Iron Corrosion, @250ppm, 500ppm	Passes	Passes
4	pH 2% dilution in distilled water	9	10

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

SYNTHETIC CUTTING FLUID



PAL SYNCO-300, 400

These are premium class of synthetic fluids based on combination of Ethylene & Propylene Oxide & provides both hydro dynamic & extreme pressure lubrication. At ambient temperature these are completely water soluble & at elevated temperatures these exhibits inverse solubility & are thus able to provide excellent lubricity at low concentration in water.

These fluids do not undergo bacterial degradation & leave objectionable odour. Further these fluids prevent the build-up of tacky or gummy residue & thus provides long term trouble free service in recirculating central cooling systems.

PAL SYNCO - 300 is especially recommended for machining & grinding operations where it provides extremely smooth surface finish.

PAL SYNCO -400 is recommended for machining & cutting operations of steel & nickel chrome steel.

Not recommended for the machining of non-ferrous metals.

Dilution ratio with water varies between 4%-5% depending upon the operation and product handled.

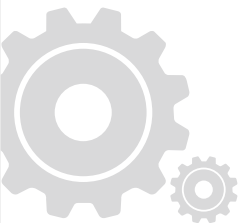
- ★ Concentrated mixture may lead to paint peel off in the machines and some discoloration of the operator's skin.
- ★ Coolant should be used only in clean circulating system.

PERFORMANCE LEVEL: IS 11186-1985(Reaffirmed 1990) specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PAL SYNCO-300	PAL SYNCO-400
1	Appearance	Green	Green
2	Solution Appearance, @2% in distilled water	Clear fluorescent	Green
3	Cast Iron Corrosion, @250ppm, 500ppm, 1000ppm	Passes	Passes
4	pH 2% dilution in distilled water	9	9.5
5	Low temperature static test	Passes	Passes

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

NEAT CUTTING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL BROACHLUBE 17 **Heavy Duty Broaching Oil**

PAL BROACHLUBE 17 is formulated with chlorine, ester & Sulphur as extreme pressure additives. Providing synergy with suitable anti-wear additive provides excellent performance at elevated temperatures helping in extending broach life & provides excellent surface finish to component.

This is a robust product & successfully used in machine shops where extreme lubrication qualities are required in cutting operation. These broaching oils are even suitable for the machining of hardest material possible.

PRODUCT FEATURES

- ★ Excellent cooling property effectively dissipates heat generated during the broaching process, prevents thermal expansion and distortion of work piece.
- ★ Superior lubrication reduces friction between the broaching tool and the workpiece surface, minimizes tool wear and prolongs the life of broaching tool.
- ★ Enhanced cleaning ability aids removal metal chips and debris from cutting area, prevents clogging of broaching area ensuring consistent cutting performance.

APPLICATIONS

Suitable for broaching and gear cutting steel, stainless steels and Nickel alloys. This product is used for broaching of medium carbon steel of automotive components. This product can be used for shaving operation also in gear cutting where anti chip welding properties are important. Specialized additives used help to extend the life of costly broaches.

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL BROACHLUBE 17
1	Appearance	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	16-18
3	Specific Gravity @29.5°C	0.940
4	Pour Point, °C, max.	-6
5	Flash Point, COC, °C min.	180
6	Copper Corrosion	4C

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

NEAT CUTTING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL GRINDHONE OIL

High Performance Honing Oil

PAL GRINDHONE OIL is a low viscosity, chlorine-free, neat cutting oil containing ester-based lubricity and performance additives for honing application. It provides excellent surface finish to hardened steels and nickel alloys.

PRODUCT FEATURES

- ★ Excellent flushing and lubrication properties extend honing stone life and enable high surface finish and dimensional accuracy
- ★ Low viscosity and excellent wetting characteristics reduce drag out and results in lower product usage

APPLICATIONS

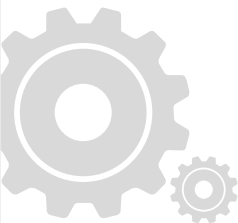
It is recommended for honing operations on a wide range of ferrous and non-ferrous materials where a high degree of finish is required. It is suitable for honing of nickel alloys, toughened steel, bearing steel and for super finishing operations where stones are used instead of tapes.

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL GRINDHONE OIL
1	Appearance	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	5-7
3	Specific Gravity @29.5°C	0.810
4	Flash Point, COC, °C min.	130
5	Copper Corrosion	1b

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

NEAT CUTTING OILS



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PAL HOBEX 22, 32

High Performance Gear Hobbing & General Machining Oil

PAL HOBEX series is a special blend of highly refined mineral oil with sulphurized additives and Synthetic Esters to form a synergistic effect to provide excellent lubricity and cooling characteristics.

These high-performance additives react chemically at the tool work & chip interface, to produce metallic derivatives which forms low friction film between the metal surfaces. This film is effective even up to 1000 °C and minimizes built up edge & ensures anti-chip welding properties.

PRODUCT FEATURES

- ★ Superior lubricity & EP additives result in less heat generation & improved surface finish excellent tool life.
- ★ Low misting & fuming properties ensure environment & operator friendly operation
- ★ Superior additives result in low oil drag out, less top-up & therefore reduced consumption.
- ★ Light color ensures better visibility at workplace & therefore ease of operation.
- ★ No obnoxious odor therefore pleasant working environment.

APPLICATIONS

- ★ Product is exclusively designed for Gear Hobbing and shaving process in metalworking industries.
- ★ It is also suitable for gear cutting, broaching, drilling, reaming and thread milling of ferrous and ferrous alloys
- ★ Product is not recommended to use for copper and copper alloys

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL HOBEX 22	PAL HOBEX 32
1	Appearance	Bright & Clear	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	20-24	30-35
3	Specific Gravity @29.5°C	0.868	0.877
4	Pour Point, °C, max.	-9	-6
5	Flash Point, COC, °C min.	160	180
6	Copper Corrosion	1b	1b

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

NEAT CUTTING OILS



PAL GUNDRILL OIL

Gun Drilling Oil For Ferrous & Non-ferrous Alloys

PAL GUNDRILL OIL is a chlorinated, sulphur-containing and heavy metal-free high-performance neat cutting oil, specifically designed for all ferrous and non-ferrous alloys.

PAL GUNDRILL OIL is specially formulated to meet the higher performance levels required by some machine manufacturers and end-users.

PRODUCT FEATURES

PAL GUNDRILL OIL enables reduced friction and good anti-weld properties at the chip-tool interface, resulting in extended cutting tool life and good surface finishes on the machined parts. They enable excellent performance in the most difficult machining operations and permit clear view of the work piece.

APPLICATIONS

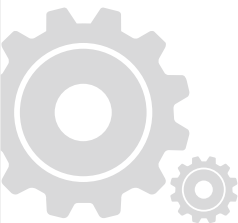
It is suitable for gun drilling, deep hole drilling, and gear cutting/shaving. Its excellent lubricity excels in honing, grinding, lapping, and broaching/tapping operations. It is suitable for all type of metallurgies including ferrous and non-ferrous alloys.

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL GUNDRILL OIL
1	Appearance	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	11-13
3	Specific Gravity @29.5°C	0.870
4	Pour Point, °C max.	-9
5	Flash Point, COC, °C min.	180
6	Copper Corrosion	1b

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

NEAT CUTTING OILS



PAL EDM OIL

High Performance EDM Oil

PAL EDM OIL is a mixture of highly refined hydrocarbon distillate. The product is colourless and virtually odourless. It exhibits a relatively high flash point that helps reducing the possibility of fire. The low viscosity of this fluid provides good circulation through the spark gap and more rapid removal of metal fines.

PRODUCT FEATURES

- ★ Low viscosity ensures good cooling and flushing action in narrow spark gaps
- ★ Low odour and light colour result in greater operator acceptability
- ★ Lower aromatics result in a safe and pleasant work environment
- ★ Excellent filter ability and high oxidation stability ensure long service life

APPLICATIONS

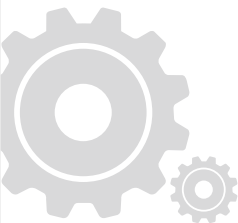
PAL EDM OIL is recommended for use on all ferrous and non-ferrous metals. It can be used in electric discharge machines of all sizes and is equally suitable for roughing as well as finishing operations.

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL EDM OIL
1	Appearance	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	2-3
3	Specific Gravity @29.5°C	0.760
4	Flash Point, COC, °C min.	110
5	Copper Corrosion	1b

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

NEAT CUTTING OILS



Since 1985 **SUPER**
Palco®
Advanced Lubricant Chemistry

PAL PUNCH 60

Fin Punching Oil For Aluminium & Copper

PAL PUNCH 60 oil is crafted for aluminium & copper fin pressing operations, delivering superior lubrication without leaving any residue. This enables subsequent processes to proceed seamlessly, eliminating the necessity for prior washing steps.

PRODUCT FEATURES

- ★ Evaporates without causing oil stains even during high-speed punching with aluminium and silicon steel plates.
- ★ Extends life of metal moulds during high-speed stroking.
- ★ Offers outstanding chemical stability over the long term.
- ★ Shows no reaction with aluminium or copper.

APPLICATIONS

- ★ Swift press operation involving aluminium and silicon steel plates for air conditioner manufacturing.
- ★ For stamping applications for aluminium & copper Alloys
- ★ For bending copper tubes used in heat exchanger hairpins
- ★ An exceptional fin press oil designed for air conditioners and various punching operations, ensuring high performance.

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL PUNCH 60
1	Appearance	Bright & Clear
2	Kinematic Viscosity, cSt @40°C	1.5-3
3	Specific Gravity @29.5°C	0.790
4	Flash Point, COC, °C min.	76
5	Copper Corrosion	1b

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

NEAT CUTTING OILS



Since 1985 **SUPER**
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PALKUT ST – 1,2,3,4,5,6

These products are high performance neat cutting fluids, designed for a wide range of applications. The product meet the highest demands of operating, cutting conditions, tools & work piece materials. Each of these products differ in their viscosity & other characteristics etc. to cover a wide range of applications. These products offer stable oil film, excellent heat dissipation, EP properties & improved surface finish.

PALKUT ST - 1 & 2

Non-staining type neat cutting oils containing chlorinated EP additives. These products are recommended for machining operation on mild steel, carbon steel, nickel steel and manganese steel such as thread grinding, form grinding, milling, honing & lapping etc.

PALKUT ST - 3

Non-staining type sulphurised fatty oil based neat cutting oil which covers a wide range of machining operations, aids in obtaining good surface finish & protects tool from excessive wear. Recommended for application in high speed automatic machine tools & multispindle lathes where operations like turning, honing etc. are performed. It is also suitable for application as general purpose machine tool lubricant.

PALKUT ST - 4

It contains sulpharised & chlorinated additives which provides excellent performance in all machining operations on non-ferrous metals & can also be used for gear hobbling, gear sharing, screw cutting, tapping, milling etc.

PALKUT ST - 5

It is an active sulphur-chlorinated type cutting oil which is recommended for deep hole drilling & deep hole boring. It is suitable for cutting of ferrous & ferrous alloys only.

PALKUT ST - 6

It is a neat cutting oil containing sulphurised fat besides active sulphur & chlorinated additives. Recommended for severe metal cutting operations including gear cutting, broaching, thread cutting, hobbing etc. It is not recommended for use on non-ferrous metals.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S							
P A L K U T							
S. NO.	PROPERTIES	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6
1	Appearance	Clear & bright amber fluid					Dark Brown
2	Kinematic Viscosity, cSt @40°C	5-8	15-25	15-25	27-35	11-15	27-35
3	Flash Point, COC, °C, min.	120	150	150	160	135	160
4	Contains						
	a) Inactive Sulphur	NO	NO	YES	YES	NO	YES
	b) Active Sulphur	NO	NO	NO	NO	YES	YES
	c) Chlorine	YES	YES	NO	YES	YES	YES

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

WIRE DRAWING OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL DRAW -ST-2, EP

These products are non-staining, high performance mineral oil based lubricant, having good cooling abilities. They are specially developed for high speed and deep drawing application of metals. They provide optimum film strength, lubricity and good metal wetting characteristics.

The products meet the highest demands of resistance to heat and stress generated during the process of wire drawing operation, thereby helps in smooth drawing, provides high degree of finish and extends the drawing equipment's life.

PAL DRAW ST - 2 is blended by using high performance base oils and fortified with a combination of Anti wear and Extreme Pressure additives to sustain higher loads during the drawing operations. Besides having the good cooling characteristics, the oil also provides a stable oil film between the metal surfaces and prevents the metals from breakages, rupture etc.

PAL DRAW - EP is chlorinated extreme pressure (EP) type, blended with fatty oils and free sulphur making it ideally suited for most severe drawing conditions. It offers high degree of finish of the tube bar both internally and externally. It is widely used for deep drawing and cold rolling of Stainless Steel tubes.

Not recommended for cuprous metals. Staining may occur on high nickel alloys.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S			
PAL DRAW			
S. NO.	PROPERTIES	ST-2	EP
1	Appearance	Dark Colour liquid	
2	Kinematic Viscosity, cSt @40°C	280-300	280-300
3	Kinematic Viscosity, cSt @100°C	21-24	31-32
4	Flash Point, COC, °C, min.	260	150
5	Copper Strip Corrosion, @100°C, max.	1(3hr.)	4(1hr)
6	Saponification Value	25-30	-
7	Neutralization No. mg KOH/gm	0.20	-
8	Four Ball weld load, kg	>200	-
9	Timken OK Load, 1bs min,	40	-
10	Four ball WSD @ 40kg mm max.	0.60	-

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

WIRE DRAWING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL VRF

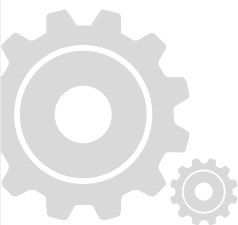
The product is blended from highly refined base oils & fortified with additives having excellent lubricity & load carrying properties. The product is to be used as a diluent with PAL-DRAW ST or PAL-DRAW EP. It has been observed that during the wire drawing operating, high stress & heat is generated & further the mixing of metal specimens / debris with the oils results in polymerization of the oil with increase in viscosity. This hampers the wire drawing operation. Mixing of PAL VRF with residual oil results in optimum viscosity of the fluid with improved wetting characteristics and extended service life.

Recommended that after 6 months of wire drawing operations, the resultant mixture should be diluted with 10 to 15% of PAL VRF OR depending upon the severity of the operation.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL VRF
1	Appearance	Dark Colour liquid
2	Kinematic Viscosity, cSt @40°C	90-110
3	Kinematic Viscosity, cSt @100°C	09-11
4	Flash Point, COC, °C, min.	210
5	Copper strip corrosion @100°C, max.	1 (3hr.)
6	Saponification Value	20-25
7	Neutralization No. mgKOH/gm	0.4

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

COLD FORGING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL CFG - 154, 155, 156

Heavy Duty, Multi Metal, General Machining Oil

PAL CFG Series products are mineral oil based neat cutting oils with inactive sulphur and synergistic addition of anti-wear additives. High performance of the products is suitable for heavy duty applications like gear hobbling, thread cutting and less severe machining operations on high tensile steel and some alloys.

PRODUCT FEATURES

- ★ Provides a lubricating film of high shear strength
- ★ Multi-Metal compatibility – non-staining for all types of metallurgies
- ★ Advanced additive technology gives high extreme pressure (EP) lubricity properties and helps to lower production costs through extended tool life
- ★ Improved surface finish and increased cutting speeds may lead to improvement of process efficiency
- ★ Our chlorine and heavy-metal free formulation improves the environmental profile and can reduce disposal costs

APPLICATIONS

- ★ PAL CFG 154 gives excellent results on multi-spindle automatics, on capstan and turret lathes and on routine machining duties where medium tensile steels up to 45 tons tensile are cut or when alternating with non-ferrous metals.
- ★ PAL CFG 155 is designed for general machining of ferrous and non-ferrous alloys
- ★ PAL CFG 156 grade is sulphurised fatty oil-based grade to use in high-speed nut forming machines

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S				
S. NO.	PROPERTIES	PAL CFG 154	PAL CFG 155	PAL CFG 156
1	Appearance	Bright & Clear	Bright & Clear	Amber Clear
2	Kinematic Viscosity, cSt @40°C	30-35	40-45	60-65
3	Specific Gravity @29.5°C	0.870	0.874	0.910
4	Pour Point, °C, max.	-9	-6	-3
5	Flash Point, COC, °C min.	180	160	180
6	Copper Corrosion	1b	1b	1b

* The specifications are subject to variations/ development / customization.

METAL CUTTING COOLANTS

COLD FORGING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL METAFORM 620

Multipurpose Forming Oil For Nuts & Fasteners

PAL METAFORM 620 is a forming fluid designed for medium to heavy duty applications. The additive package provides extended tool life and the residual film after the operation is easily degreasable. PAL METAFORM 620 is a thermally stable product, and is developed for forging large or small fasteners, nuts made from all types of stainless steels or steels.

PRODUCT FEATURES

- ★ No formation of black residues on components
- ★ Less heat generation which prolongs the life of the oil as well as leads to perfect surface finish of the components
- ★ Good rust preventive characteristics
- ★ High EP content in the product extends Tool life

APPLICATIONS

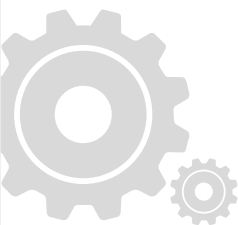
Due to high oxidation and thermal stability, the oil can be maintained in a tank and applied by flooding or by direct application on the heated incoming rods, for forming Nuts and Bolts

PERFORMANCE LEVEL: Meets IS :3065 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL METAFORM 620
1	Appearance	Clear Amber
2	Kinematic Viscosity, cSt @40°C	90-110
3	Specific Gravity @29.5°C	0.970
4	4-Ball Weld Load,kg	650 kg
5	Flash Point, COC,°C min.	180
6	Copper Corrosion	4C

* The specifications are subject to variations/ development / customization.



METAL CUTTING COOLANTS

COLD FORGING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL FORGE 68,100

These oils are formulated from highly refined mineral oils and contain a combination of chemical active & polar additives. These oils have excellent extreme pressure (E.P) properties & during thermal degradation they forms a strong protective oil film which is capable of undertaking heavier loads, reduce friction & provides the best protection for the work pieces & dies. They also provide excellent antiwear & cooling performance during operation & extend the life of dies.

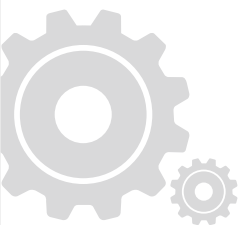
Recommended as a lubricant designated exclusively for stainless steel cold forging work including bolt nuts, bushes, screws etc.

The product is not recommended for metal processing of copper & aluminium.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
P A L F O R G E			
S. NO.	PROPERTIES	68	100
1	Appearance	Dark Brown	Dark Brown
2	Kinematic Viscosity, cSt @40°C	64-72	90-110
3	Pour Point, °C, max.	-6	-6
4	Flash Point, COC, °C, min.	180	180
5	Copper Corrosion 100°C for 3hrs.	4C	4C

* The specifications are subject to variations/ development / customization.



RUST PREVENTIVES

OIL BASED RUST PREVENTIVES



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL RUSTNIL- L, H

These are lubricant type corrosion & rust preventive. The protective film of these grades have lubricating properties besides preventing moist air coming into contact with metal surfaces. They can be applied by dipping, spraying, roller coating, flow coating, flushing or circulation. Since the protective film has lubricating properties, it is not necessary to be removed. However these are easily removable by wiping.

These oils are formulated with high quality base stocks and carefully selected additive system to ensure formation of soft oily film over the metal surfaces and protection against rusting.

APPLICATIONS

PAL RUSTNIL-L offers thin lubricating film. It is recommended for protection of steel sheets, shafting, conveyors, precision and drawn tubes, exposed gear etc.

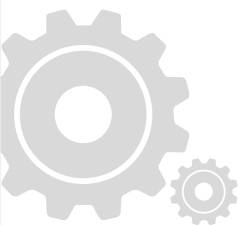
PAL RUSTNIL-H has higher viscosity and hence it is suitable for protection of cycle rims/frames, handle bars etc., besides internal protection of gearboxes, hydraulic mechanism chain and external protection of instruments.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL RUSTNIL-L	PAL RUSTNIL-H
1	Appearance	Amber Clear Fluid	Amber Clear Fluid
2	Kinematic Viscosity, cSt@40°C,	10-12	20-25
3	Flash Point, COC, °C, min.	70	150
4	Pour Point, °C, max.	-3	-6
5	Protection: Indoor Outdoor	4 months 1 month	6 months 1 month

* The specifications are subject to variations/ development / customization.



RUST PREVENTIVES

DEWATERING TYPE RUST PREVENTIVES



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL RUSTOP - 247

PAL RUSTOP - 247 is water displacing type rust & corrosion preventive. It forms a soft film; solvent deposited & can be applied directly to the water wet surface where it forms a protective film after displacement of water. It is based on blends of film forming materials, corrosion inhibitors & a special type of wetting agent which strongly adheres to the parts. It can be easily applied by dipping, spraying or by brush. The protective film can be removed by wiping off with rags or waste soaked in kerosene / mineral turpentine oil.

APPLICATIONS

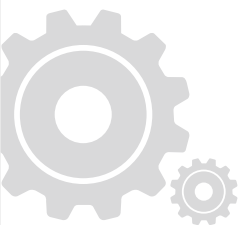
PAL RUSTOP – 247 is especially recommended as protective for all types of bearings, machine tools & components.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL RUSTOP-247
1	Appearance	Amber Clear Fluid
2	Flash Point, COC, °C, min.	40
3	Copper strip corrosion D130, 3hr at 100°C	1
4	Water Displacement Test	Pass
5	Coverage, Sq ² m / Litre	75

* The specifications are subject to variations/ development / customization.



RUST PREVENTIVES

LONG TERM PROTECTION RUST PREVENTIVES



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL RUSTOP- 910, 920, 930,940

These are water displacing type rust & corrosion preventives. These form soft film, solvent deposited & can be applied directly to the wet metal surfaces where they form a protective film after the displacement of water.

PAL RUSTOP 910, 920, 930, 940 are based on blends of film forming materials, corrosion inhibitors to enhance the performance in salt spray & humidity cabinet tests. These are also incorporated with special type of wetting agents which will adhere to the parts.

The protective films of these grades can be removed by wiping off with rags or waste soaked in kerosene / mineral turpentine oils or by alkaline degreasents.

APPLICATIONS

PAL RUSTOP 910 is especially recommended for protection during storage of machine tools & components.

PAL RUSTOP 920 has a wide application for protection of components with high degree of finish, in machine shops & heavy machinery & plant manufacturing e.g. machinery tools, fasteners, metal strips etc. Because of its excellence performance in salt spray & humidity cabinet, it can be applied on components to be freighted by sea.

PAL RUSTOP 930 is recommended for the protection of components like machine tools, fasteners etc.

PAL RUSTOP 940 is recommended for the protection of components which are wrapped in paper especially fasteners etc.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S					
S. NO.	PROPERTIES	PAL RUSTOP-910	PAL RUSTOP-920	PAL RUSTOP-930	PAL RUSTOP-940
1	Appearance	Amber clear fluid			
2	Flash Point, COC, °C, min.	45	45	45	45
3	Protection: Indoor	6 months	9 months	6 months	1 month
	Outdoor	1 month	2 months	1 month	
4	Film Thickness Microns	4-5	7-9	5-6	4-6
5	Salt Spray Test	24 Hrs.	60 Hrs.	48 Hrs.	15 Hrs.
6	Dewatering Test	Time 120 Second or below passes the test – Pass			
7	De-Emulsification Test	Time 60 Minutes or below passes the test - Pass			

* The specifications are subject to variations/ development / customization.

INDUSTRIAL LUBRICANTS

HYDRAULIC OILS AW TYPE



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PHYDOL AW - 32, 46, 68, 100, 150, 220, 320, 460

These are premium quality high performance oils, designed to satisfy the performance requirements for a wide range of hydraulic components in systems subjected to high-pressure, high-temperature operating conditions. They have good film strength property, inherent oxidation and thermal stability, besides excellent ability to separate from water and have very good air release properties. They offer high resistance to the formation of lacquers and other oxidation products and resistance to rusting and corrosion in high humidity operations or where low levels of moisture are unavoidable.

These oils are formulated with high quality base stocks and carefully selected additive system that result in finished products to provide many desirable features, to work with systems operating under moderate to severe conditions where a high level of anti-wear protection is required.

Recommended for hydraulic system, systems employing gear, bearings, vane, radial and axial piston pumps, chain drivers, compressors, vacuum pumps, mining machinery machine tools, circulation oiling system etc. where anti-wear type hydraulic oils are recommended.

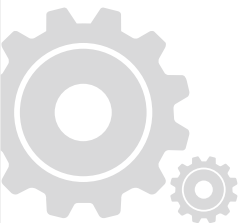
PERFORMANCE LEVEL: IS 10522-1983 (Reaffirmed 1993), US Steel No.127, Vickers V-104C vane pump test and IPSS 1-09-022 specifications.

PACKING: 210L, 50L, 20L, 5L

PACKING: PHYDOL AW 68: 210L, 50L, 20L, 5L, 1L

C H A R A C T E R I S T I C S									
PHYDOL (AW)									
S. NO.	PROPERTIES	32	46	68	100	150	220	320	460
1	Kinematic Viscosity, cSt @40°C	29-35	42-50	64-72	90-110	140-160	200-240	300-340	440-480
2	Viscosity Index, min.	90	90	90	90	90	90	90	90
3	Flash Point, COC, °C, min.	180	180	180	180	180	220	220	220
4	Pour Point, °C, max.	-6	-6	-6	-3	-3	-3	-3	-3
5	Rust Properties(ASTM D665,24/hrs.)	-----Pass-----							
6	Zinc % wt (ICP Emission)	0.035 – 0.043							
7	Phosphorus, % wt. (ICP Emission)	0.028 – 0.033							

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

HYDRAULIC OILS HLP TYPE



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PHYDOL HLP - 32, 46, 68, 100

These are high performance heavy-duty oils, primarily intended for applications where oil is used for extended period in circulation & hydraulic systems in wide range of industrial equipment and subjected to wide variations in ambient and operating temperatures. They possess good demulsibility that permits water and other contaminants to separate readily from the oil in the system reservoir. They are incompressible and remain in a fluid enough state to allow effective power transmission besides having outstanding antiwear, antirust, good air release, anti-foam, and oxidation resistance properties.

Recommended for use in hydraulic systems employing gear, vane, radial and axial piston pumps where anti-wear hydraulic fluids are required and clearances are relatively large. Due to their low pour point, they are recommended for sophisticated high performance electro-hydraulic or numerically controlled systems. They are also recommended for use in hydraulic couplings, injection moulding machineries, certain screw compressors and vacuum pumps handling air and inert gases provided the discharge temperatures do not exceed 150°C. They are suitable as multipurpose lubricants in systems and perform well at the elevated temperatures but not suitable for shock loading and extreme pressure.

PERFORMANCE LEVEL: IS 11656-1986 (Reaffirmed 1993), DIN 51524 Part-2, US Steel 127, Dension HF-0&HF-2, Cincinnati Milacron P-68, P-69, P-70 specifications. It also passes Vickers Vane Pump Test.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S					
PHYDOL (HLP)					
S. NO.	PROPERTIES	32	46	68	100
1	Kinematic Viscosity, cSt @40°C	29-35	42-50	64-72	90-110
2	Viscosity Index, min.	90	90	90	90
3	Flash Point, COC, °C, min.	180	180	180	180
4	Pour Point, °C, max.	-18	-15	-12	-9
5	Copper Strip Corrosion, @100°C for 3 Hrs. (max.)	1	1	1	1
6	FZG Pass Load Stage, min.	10	10	10	10
7	Rust Properties (ASTM D665, 24/hrs.)	-----Pass-----			
8	Zinc % wt (ICP Emission)	0.048 – 0.055			
9	Phosphorus, % wt. (ICP Emission)	0.038 – 0.043			

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

SLIDEWAY OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL WAY OILS 32, 46, 68, 220

These oils are formulated from high performance base stocks & additives which provides tackiness, anti-corrosive & anti – foaming properties resulting in higher loading of machine tools, minimum stick-slip & improved surface finish to the job.

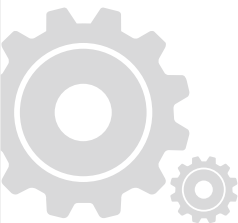
These oils have excellent antiwear / EP performances, good demulsibility & excellent filter ability in the presence of water. Due to their good adhesive properties, these oils results in reduced oil consumption.

Recommended for slide way lubrication of planers, grinders, horizontal boring machines, jig borers, shapers etc.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S					
S. NO.	PROPERTIES	PALWAY OILS			
		32	46	68	220
1	Kinematic Viscosity, cSt @40°C	29-35	44-48	64-72	200-240
2	Viscosity Index, min.	90	95	90	80
3	Flash Point, COC, °C, min.	180	200	180	200
4	Copper corrosion @ 100°C for 3 hours.	1	1	1	1
5	Steel corrosion	Pass	Pass	Pass	Pass

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

SPINDLE OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL SPIN -10, 12, 22

These are high quality, low viscosity lubricant manufactured from solvent refined, high viscosity index base oils, having good film strength property, chemical and oxidation stability, besides excellent ability to separate from water. They provide economical bearing lubrication of high-speed textile spindle, machine tool spindles and protection from excessive wear.

These oils are blended from highly refined base stocks and carefully selected antioxidants, anticorrosion, antirust, antiwear and antifoam additives.

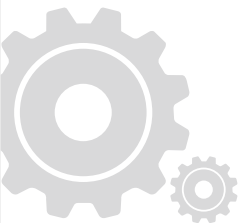
These oils are recommended for lubrication of textile and machine tools spindle bearings, hydraulic system of precision machine tools, timing gears, centrifugal separators, and positive displacement blowers.

PERFORMANCE LEVEL: IS 493 PART-II (Reaffirmed 1993) specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S				
P A L S P I N				
S. NO.	PROPERTIES	10	12	22
1	Kinematic Viscosity, cSt @40°C	9-11	11-13	21-23
2	Viscosity Index, min.	90	90	90
3	Flash Point, COC, °C, min.	160	160	180
4	Pour Point, °C, max.	-3	-3	-3
5	Copper corrosion @ 100°C for 3 hours.	1	1	1

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

GENERAL MACHINING OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL LUBE – 32, 46, 68, 100, 150, 220, 320, 460

These are high quality, solvent refined, high viscosity index paraffinic mineral oils, having good film strength property, inherent oxidation and thermal stability, besides excellent ability to separate from water. They offer high resistance to the formation of lacquers and other oxidation products and resistance to rusting and corrosion. They provide economical lubrication and protect roll-neck bearings of steel mills from excessive wear under light and medium loads.

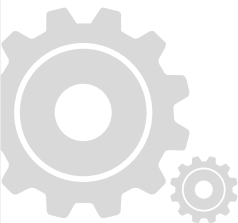
Recommended for lubrication of plain or roller bearings; in particular for circulating and bath systems, vertical and horizontal enclosed crank-case engines, sliding vane rotary machines, high pressure reciprocating machines, where the operating conditions are not severe and straight mineral oils can perform satisfactorily.

PERFORMANCE LEVEL : IS 6552-1987, IPSS 1-09-001-81 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S									
P A L L U B E									
S. NO.	PROPERTIES	32	46	68	100	150	220	320	460
1	Kinematic Viscosity, cSt @40°C	29-35	42-50	64-72	90-110	140-160	200-240	300-340	440-480
2	Viscosity Index, min.	90	90	90	90	80	80	80	80
3	Flash Point, COC, °C, min.	180	180	180	180	180	200	200	240
4	Pour Point, °C, max.	-6	-6	-6	-3	-3	-3	0	0

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

INDUSTRIAL GEAR OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL INGOL EP – 32, 68, 100, 150, 220, 320, 460, 680

These are industrial extreme pressure gear lubricants, specially developed for the lubrication of heavily loaded enclosed gear sets including spur, helical and bevel designs and provide protection in applications where shock loading occurs. PAL Ingol EP has high load carrying ability, protection against wear; helps to reduce sludge formation and increases oil service life. Further these oils provide strong protection against corrosion of steel and copper containing alloys and resists foaming besides having good water separation properties for easy water elimination.

These oils are formulated with high quality base stocks and carefully selected sulphur/phosphorus extreme pressure additive to provide high level of anti-wear & E.P. properties.

Recommended for use in a wide range of heavy duty enclosed and semi-enclosed gear systems having spur/straight bevel/spiral bevel/worm/herring-bone/helical types of gears, industrial, plain and roller bearings, sliding surfaces, chain drives, sprockets, flexible coupling etc. especially operating at low speeds and high loads for continuous service up to 110°C.

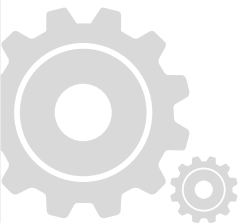
These are not suitable for foods and drug industries and those required to be operated under extremely severe and hostile environment viz. gear drives operating at speed over 3600 rev/min and/or pitch-line velocities exceeding 1500m/min and Lubricant's sump temperatures generally exceeding 110°C.

PERFORMANCE LEVEL: IS 8406-1993 (EP Type Gear Lubricants), DIN 51517 Part-3, Cincinnati Milacron P-35, P-59, P-63, P-77, IPSS 1-09-003 and US Steel 224 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S									
P A L I N G O L E P									
S. NO.	PROPERTIES	32	68	100	150	220	320	460	680
1	Kinematic Viscosity, cSt @40°C	29-35	64-72	90-110	140-160	200-240	300-340	440-480	650-710
2	Viscosity Index, min.	90	90	90	80	80	80	70	70
3	Flash Point, COC, °C, min.	180	180	180	180	200	200	240	240
4	Pour Point, °C, max.	-6	-6	-6	-6	-6	-6	-3	-3

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

THERMIC FLUIDS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALTHERM – 500, 600

These are high performance products designed for heat transfer in Textile, Pharmaceutical, Chemical and Processing Industries, equipped with indirect or secondary heating systems. They possess excellent resistance to thermal cracking and chemical oxidation and are non-corrosive and non-toxic. They possess high specific heats and thermal conductivities that provide good heat transfer efficiency and their viscosities are such that they can be pumped readily at both start-up and operating temperatures.

PALTHERM Heat Transfer Fluids are formulated from very stable high viscosity index base oils, coupled with a low pour point and fortified with high temperature oxidation inhibitors.

PALTHERM Heat Transfer Fluids are recommended for use in closed, forced circulation with indirect or secondary heating systems, equipped with expansion tanks. The temperature of the oil film surrounding the heating element should be about 15°C to 30°C above the bulk oil temperature. Higher than this may lead to deposit of sludge and coke which would interfere with the heat transfer rates and also shorten the service life of the oil.

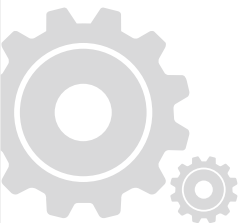
PALTHERM - 500 and **PALTHERM - 600** grades are suitable for heat transfer system operating up to 290°C & 310°C respectively.

These oils are not recommended for use in open systems where hot oil is exposed directly to the air. If they spray or escape from leakage points, hot oils may spontaneously ignite.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
P A L T H E R M			
S. NO.	PROPERTIES	500	600
1	Kinematic Viscosity, cSt @40°C	28-32	32-35
2	Viscosity Index, min.	95	95
3	Flash Point, COC, °C, min.	200	210
4	Pour Point, °C, min.	-3	-3
5	Copper Strip Corrosion, 3 hrs. @100°C, (ASTM), max.	1	1
6	Neut. Number, mg KOH/gm., max.	0.15	0.15

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

SYNTHETIC THERMIC FLUIDS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALTHERM – S LIGHT & MEDIUM

TPALTHERM S - LIGHT is the synthetic heat transfer fluid for use in the liquid phase for heat transfer at operating temperature ranging from 40°C to 250°C applications.

PALTHERM S - LIGHT is ideally suited for processes in which heat has to be both applied & removed. It provides improved thermal stability over its entire range of applications. With its use, thermal changes involving the formation of highly viscous or solid deposits on the walls & heat transfer fluid circuit can be eliminated / reduced even over long operating periods within the operating range, the product exhibits an excellent service life.

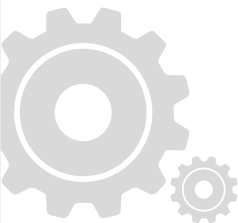
PALTHERM S - MEDIUM is a moderate viscosity synthetic heat transfer fluid capable of providing satisfactory service life upto a bulk oil temperature of 320°C. It offers the following advantages over mineral based fluid.

- ★ Resists deterioration at recommended operating temperatures.
- ★ Assures long fluid life & clean systems.
- ★ Good heat transfer characteristics.
- ★ Low pour point & moderate viscosity, decreases the pumping losses and power requires for circulation.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S			
P A L T H E R M			
S. NO.	PROPERTIES	PALTHERM S-LIGHT	PALTHERM S-MEDIUM
1	Appearance	Clear & bright	Clear & bright
2	Kinematic Viscosity, cSt @40°C	4.08	23.20
3	Pour Point, °C, max.	-54	-42
4	Total acid No. mg. KOH/g	0.02	0.02
5	Flash Point, COC, °C, min.	120	210

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

COMPRESSOR OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALCOMP - 32, 46, 68, 100, 150

These are developed to meet satisfactory lubrication under moderate oxidation & thermal performance. Blended from high performance solvent refined & hydro cracked base stocks with suitable selected antioxidants, antiwear, antirust & antifoam additives.

PRODUCT FEATURES

- ★ High level of oxidation & thermal stability.
- ★ Low Carbon forming characteristics
- ★ Good EP/Antiwear properties

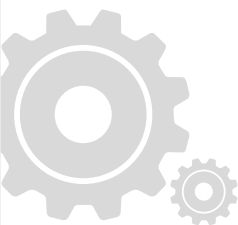
Recommended for moderate performance reciprocating rotary air / screw compressors up to a discharge air temperature of 220°C. These oils are suitable for use in air vacuum pump designed to deliver at a pressure greater than the atmosphere pressure.

PERFORMANCE LEVEL: DIN 51506 VD-L & ISO DP-6521 Specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S						
P A L C O M P						
S. NO.	PROPERTIES	32	46	68	100	150
1	Appearance	Clear, bright colour				
2	Kinematic Viscosity, cSt @40°C	29-35	42-50	64-72	90-110	140-160
3	Viscosity Index, min.	90	90	90	90	80
4	Flash Point, COC, °C, min.	180	180	180	180	180
5	Pour Point, °C, max.	-9	-9	-6	-6	-3

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

TURBINE OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL TURBINE - 32, 37, 46, 57, 68, 78, 100

These oils are high quality, corrosion and oxidation inhibited turbine oils, for use in power plant steam and gas turbine lubrication. In addition they have excellent rust preventing, demulsibility, foam suppressing and air release properties. These oils prevent sludge deposits, reduce wear and tear, rust/corrosion of components, and provide trouble free operations.

These premium grade oils are formulated with high viscosity index base stocks and carefully selected antirust, anticorrosion, antioxidant & antifoam additives. They exhibit good air & water release properties.

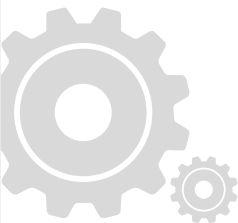
PAL TURBINE oils are recommended for the lubrication of ring oiler of bearings of steam/water/gas turbines and pressure circulating systems. These oils can also be used for the lubrication of bearings of rotary/turbo compressors, where oils of turbine quality are required.

PERFORMANCE LEVEL: IS 1012-2002 and DIN 51515, Part-1 specifications.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S							
P A L T U R B I N E							
S. NO.	PROPERTIES	32	37	46	57	68	100
1	Kinematic Viscosity, cSt @40°C	29-35	33-39	42-50	53-60	64-72	90-110
2	Viscosity Index, min.	90	90	90	90	90	90
3	Flash Point, COC, °C, min.	180	180	180	180	180	180
4	Pour Point, °C, max.	-9	-9	-6	-6	-6	-6

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

REFRIGERATION OILS



Since 1985 **SUPER**
Palco
Advanced Lubricant Chemistry

PAL FRIZ - 12, 22, 32, 46, 68, 100

These oils are formulated from selected lube base stocks to provide low pour point, low floc point, good solubility in liquefied refrigerants & good chemical stability. They possess high fluidity at very low temperatures, resist deposit formation & have reduced tendency to foam. These oils ensure higher condenser efficiency and reduced compressor valve maintenance due to less deposits. These oils also impart antiwear & rust protection properties.

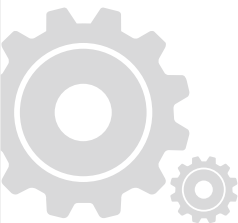
Recommended for a wide range of refrigeration compressor, both reciprocating as well as rotary using conventional refrigerants except sulphur dioxide. These grades are also recommended for the lubrication of hermetically sealed refrigeration compressors.

PERFORMANCE LEVEL: IS 4578-1989 specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S							
PAL FRIZ							
S. NO.	PROPERTIES	12	22	32	46	68	100
1	Appearance	Clear, brown liquid					
2	Kinematic Viscosity, cSt @40°C	12-14	20-24	29-35	42-50	64-72	90-110
3	Flash Point, COC, °C, min.	180	180	180	180	180	180
4	Pour Point, °C, max.	-39	-36	-33	-30	-27	-27
5	TAN, mg KOH/g of oil, Max.	0.05	0.05	0.05	0.05	0.05	0.05

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

CYLINDER OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL CYL – 460, 680

These are high quality, heavy base stocks having excellent lubricating properties & thermal stability.

PRODUCT FEATURES

- ★ Excellent oiliness & film strength.
- ★ Resistant to washing effect.
- ★ Excellent load carrying capacity.
- ★ Good inherent oxidation and thermal stability.

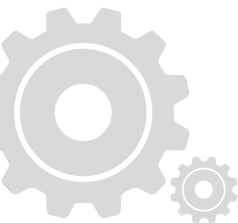
APPLICATIONS

- ★ Steam cylinder lubrication.
- ★ Calendar bearings & sugar mill roller bearings.
- ★ Lubricating of worm gears.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S				
P A L C Y L				
S. NO.	PROPERTIES	460	680	800
1	Kinematic Viscosity, cSt @40°C	410-480	600-720	620-750
2	Viscosity Index min.	70	70	70
3	Pour Point, C° max.	6	12	12
4	Flash Point, COC, °C, min.	240	240	240

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

ENGINE FLUSHING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL FLUSH

PAL FLUSH is formulated for flushing of engine, transmission and other lubrication systems after the old oil has been drained out. It is a blend of highly refined light mineral oil and detergent/dispersant additives to enhance removal of sludge and lacquers.

Recommended for use where a system's history is unknown or service fill lubricant may have been used beyond its oil drain interval / contamination problem.

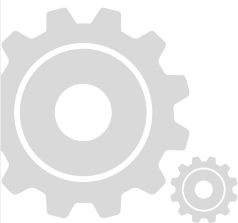
Direction for use

- ★ Warm up the oil by running the system till the oil reaches normal operating temperature.
- ★ Open the drain plug and drain out the used oil.
- ★ Fill the system with PAL FLUSH OIL between minimum and maximum level.
- ★ Run the system without load for 5 to 10 minutes or till the oil reaches normal operating temperature and circulates throughout the system.
- ★ Drain out the flushing charge and ensure that the system is free of sludge and lacquers or any other contamination. If the examination is not satisfactory, repeat the procedure.
- ★ Refill the system with recommended lubricant.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL FLUSH
1	Kinematic Viscosity, cSt @40°C	21-23
2	Kinematic Viscosity, cSt @100°C	3-4
3	Specific gravity, Max.	0.901
4	Flash Point, COC, °C, Min.	170
5	Pour Point, °C, Max.	-3

* The specifications are subject to variations/ development / customization.



INDUSTRIAL LUBRICANTS

VACUUM OIL



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL VACUUM OIL

PAL VACUUM OIL is specially developed as vacuum oil having low vapour pressure 1×10^{-6} mmHg at 20°C. This oil is having high thermal stability which helps in maintaining a constant vacuum for the operation over a period of time.

PERFORMANCE BENEFITS

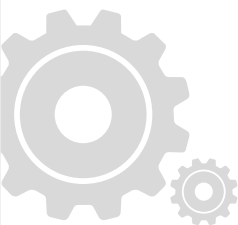
- ★ High level of thermal stability.
- ★ Low Vapour Pressure
- ★ Maintain constant vacuum.
- ★ Extended life.

Recommended for high vacuum producing diffusion in pumps.

PACKING: 210L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL VACUUM PUMP OIL
1	Appearance	Clear, free flowing liquid
2	Kinematic Viscosity, cSt @ 40°C	90-110
3	Viscosity Index, Min.	100
4	Flash Point, COC, °C, Min.	210
5	Pour Point, °C, Max.	-9
6	TAN mgKoh/gm Max.	0.02
7	Vapour Pressure @ 20°C, mm of hg Max.	1×10^{-6}

* The specifications are subject to variations/ development / customization.



HEAT TREATMENT QUENCHING OILS-COLD



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALQUENCH - S, C

These are high quality, solvent refined, high viscosity index quenching oils, blended from highly refined base oils and selected additives for effective quenching and uniform hardening of metal components without metallurgical distortion. They have good oxidation and thermal stability, prevent formation of sludge, rust and corrosion and also offer long service life.

PALQUENCH-S is suitable for general purpose quenching operation of steel components such as nuts and bolts, ball bearings etc. manufactured by automobile and light engineering industry at bath temperature 50°C to 65°C.

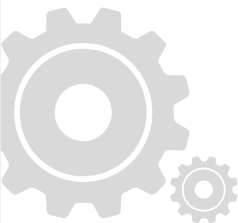
PALQUENCH-C is recommended for quenching operation where compounded oil is preferred, viz. for quenching of variety of steel components in major industries, high speed steel tools, ball bearings, nuts, springs etc.

PERFORMANCE LEVEL: IS 2664-1980, Straight Mineral Type, Compound Type & IS 4543-1977 (Reaffirmed 1987) specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PALQUENCH-S	PALQUENCH-C
1	Kinematic Viscosity, cSt @40°C	26-30	26-30
2	Kinematic Viscosity, cSt @100°C	4-6	4-6
3	Flash Point, COC, °C, min.	180	190
4	Quenching Time by Magnetic Quenchometer. (ASTM D 3520)	24	18
5	Viscosity Index, min.	90	90

* The specifications are subject to variations/ development / customization.



HEAT TREATMENT QUENCHING OILS-HOT



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALQUENCH - H, HC

These are high quality, solvent refined, high viscosity index quenching oils, blended from highly refined base oils and selected additives for effective quenching and uniform hardening of metal components without metallurgical distortion. They have good oxidation and thermal stability, prevent formation of sludge, rust and corrosion and also offer long service life.

PALQUENCH-H is recommended for the mass production of high precision, high quality products viz. automotive gears and transmission components, bearing rings etc. at an optimum bath temperature up to 180°C.

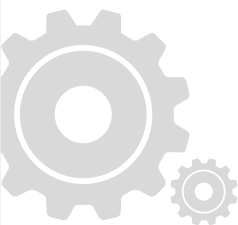
PALQUENCH-HC is recommended for quenching operation where compounded oil is preferred at an optimum bath temperature up to 180°C.

PERFORMANCE LEVEL: IS 2664-1980, Straight Mineral Type, Compound Type & IS 4543-1977 (Reaffirmed 1987) specifications.

PACKING: 210L, 50L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PALQUENCH-H	PALQUENCH-HC
1	Kinematic Viscosity, cSt @40°C	210-230	95-115
2	Kinematic Viscosity, cSt @100°C	17-19	11-13
3	Flash Point, COC, °C, min.	240	240
4	Quenching Time by Magnetic Quenchometer. (ASTM D 3520)	35	28
5	Viscosity Index, min.	90	95

* The specifications are subject to variations/ development / customization.



TEXTILE LUBRICANTS

KNITTING OILS -WASHABLE



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PALKNIT OILS 22, 32

These are non-corrosive, easily washable, non-abrasive knitting oils which are self emulsifiable in water and provide high level of scour ability from knitted yarns or fabrics. Good wetting and good lubricity with excellent washable properties leaving the fabric free from stains.

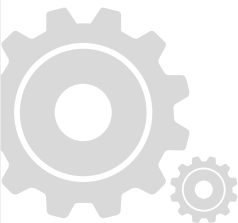
Formulated by using high quality of mineral oils & fortified with selected additives so as to provide good anti-wear, antirust, antistatic & anti-oxidant properties.

Recommended as non-staining type needle lubricants for large diameter circular knitting machines as well as for various other types of knitting machines & are suitable for automatic oiling units commonly fixed to circular knitting machines or by manual oiling methods. These are recommended for knitting of cotton or cotton-polyester, synthetics & dyed / undyed yarns etc.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PALKNIT-22	PALKNIT-32
1	Appearance	Clear liquid free from suspended matter.	
2	Colour	Colour less liquid	
3	pH of 10% Emulsion	7-8	7-8
4	Ionic Nature	Non-Ionic	Non-Ionic
5	Kinematic Viscosity cSt @40°C	20-24	29-35
6	Specific Gravity @15°C	0.86-0.87	0.86-0.87
7	Flash Point, COC, °C min.	180	180
8	Wash ability	Excellent	Excellent

* The specifications are subject to variations/ development / customization.



TRANSFORMER OIL

TRANSFORMER OIL



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL POWER FLUID - 20

PAL POWER FLUID - 20 is a fluid medium specially developed to meet the requirements of all types of transformers from medium to extra high voltage range ensuring optimum performance and safety of the transformers. It cools the transformers and insulates the coils from electric short circuit. It is non-conductive and has excellent fluidity, even at low temperature (-6C). It has high flash point resulting in low evaporation losses and has good dielectric properties resulting in minimum power loss.

It is formulated from highly refined mineral oil, having good high temperature stability & excellent electrical insulating properties. Special refining steps are used to ensure that oil-soluble current-carrying ionic materials are removed.

PAL POWER FLUID - 20 is recommended for use in Transformers, oil immersed circuit breakers and switchgears. This oil is also widely used in special transformers designed to operate at elevated temperatures and in low maintenance / maintenance-free transformers designed to operate for longer periods.

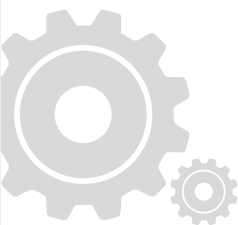
This product is not recommended for use where safety specifications require the use of non-flammable insulating oil. Also not recommended for use where synthetic dielectric fluids and uninhibited oils are required.

PERFORMANCE LEVEL: IS 335-1993 (Reaffirmed 2005) specifications.

PACKING: 210L, 50L, 20L

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL POWER FLUID -20
1	Kinematic Viscosity, cSt @40°C	20
2	Density @29.5°C, g/cm ³ , Max.	0.89
3	Flash Point (PMCC), °C, Min	150
4	Pour Point, °C, Max	-6
5	Total acidity, mg KOH/gm	0.03
6	Electric Strength(breakdown voltage), KV,Min	30

* The specifications are subject to variations/ development / customization.



SUGAR MILL OILS

ROLL BEARING OILS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL SMR- 2, 3

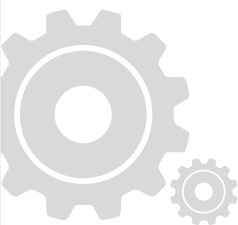
These lubricants are specially developed to meet the requirements of heavily loaded mill roll bearings in sugar mills. These oils are formulated with high viscosity lubricating oil base stocks and fortified with selected non-toxic mild EP and special compounding agents. They possess excellent resistance to leakage and protect the bearings against corrosion and wear.

Recommended for lubrication of sugar mill roll bearings. Also recommended for open gear lubrication by slush pan method and centralized lubrication system of slow speed spur and helical gears in industries.

PACKING: 210L

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PAL SMR-2	PAL SMR-3
1	Kinematic Viscosity, cSt @100°C	38-45	78-88
2	Flash Point, COC, °C, min.	210	210

* The specifications are subject to variations/ development / customization.



SUGAR MILL OILS

OPEN GEAR COMPOUNDS



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL OGC- 120, 140

These are heavy viscous black bituminous product, fortified with special EP and thickening agents. They have excellent film strength to withstand the high pressure normally encountered in heavily loaded open gears. They also possess good antiwear and antirust properties. They are homogeneous and heat reversible, i.e., they return to the same homogeneous state after heating. Thus they have the ability to stay in place and provide protection to open gears and wire ropes.

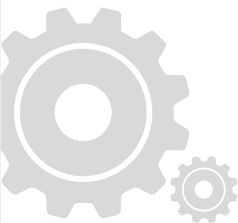
PAL OGC- 120, 140 meet IS 9554-1980 specifications and are recommended for lubrication of open gears, cable and wire ropes.

Not recommended for lightly loaded open gears and not to be used in food processing industries.

PACKING: 180KG

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PAL OGC-120	PAL OGC-140
1	Kinematic Viscosity, cSt @100°C	200-250	400-550
2	Flash Point, COC, °C, min.	210	210
3	Copper strip corrosion test, 3 hrs, @ 100°C, max.	Negative	Negative
4	Acidity, inorganic	Nil	Nil
5	Water content, %by mass, max.	1	1
6	Homogeneity test	Passes	Passes
7	Colour	Black	Black

* The specifications are subject to variations/ development / customization.



SUGAR MILL OILS

OPEN GEAR COMPOUNDS HEAVY DUTY



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL OGCHD- 1000, 1500

Specifically formulated bituminous compound for open gear, cables and wire ropes. These compounds are designed to cater mixed as well as hydrodynamic lubrication of open gears. It has excellent EP properties to address the shock loading during gear teeth meshing. They impart strong metal adhesion due to added tackiness. It does not get squeezed out during teeth meshing and nor get thrown off due to centrifugal action. Additionally, it has rust preventive properties those are observed due to pitting. It can be applied with swab, paddle or with sump method.

PRODUCT FEATURES

- ★ Lubrication film stability
- ★ Strong Adhesion
- ★ Excellent rust protection
- ★ Good EP Properties
- ★ Does not leave residue

APPLICATIONS

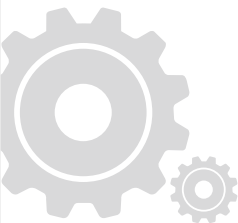
- ★ Klins
- ★ Rod Mills
- ★ Sugar Mills
- ★ Racks and Pinions, Drag Lines, Shovels

PACKING: 180KG, 18KG

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL OGC-1000	PAL OGC-1500
1	Appearance	Smooth & Tacky	Smooth & Tacky
2	Colour	Black	Black
3	Kinematic Viscosity, cSt @40°C	900-1000	1400-1600
4	Weld Load, Kgs	400	400
5	Copper strip corrosion test, 3 hrs, @ 100°C, max.	1B	1B
6	Flash Point, COC, °C, min.	210	230

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

EXTREME PRESSURE GREASES



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL EP- 000,00, 0, 1, 2,3

These greases are lithium-based products containing highly-refined mineral oils and fortified with extreme pressure (EP) additives as well as corrosion and oxidation inhibitors. These greases have been formulated with additives that provide good film strength under medium-to-high loads.

They are designed for plant-wide lubrication, the range extending from NLGI-2 for general purpose bearing lubrication to NLGI-0 (semi-fluid grease) suitable for centralized lubrication systems and grease filled gearboxes. These greases provide good protection against rust and corrosion as well as resistance to water wash-out which makes them particularly suitable for equipment where moist or wet conditions are common. These greases also possess high mechanical stability, good adhesion and anti-wear properties, thus enhancing component life and increase re-lubrication intervals.

Recommended for lubrication of all plain and anti-friction bearings, heavy duty ball and roller bearings of industrial equipment used in steel plants, heavy engineering units, machine tool units, textile mills, paper mills, fertilizer plants, sugar mills etc. particularly where contacting surfaces are exposed to very heavy pressure and shock loads and for continuous service up to 130°C.

These greases are compatible only with lithium base grease. Sealed bearings should be thoroughly cleaned before using grease described in this product bulletin.

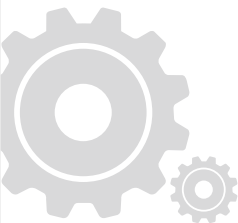
PERFORMANCE LEVEL: IS 7623-1993 & NLGI-0,1,2 & 3 specifications.

PACKING: 180KG, 18KG

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL EP-000	PAL EP-00	PAL EP- 0	PAL EP-1	PAL EP-2	PAL EP-3
1	Appearance	Brown					
2	Soap Type	Lithium					
3	Base Oil Type	Mineral					
4	Base Oil Viscosity, @40°C	150	120				
5	Viscosity Index of base oil, min.	95	90				
6	Cone Penetration, @25°C ± 0.5°C	445-475	400-430	355-385	310-340	265-295	220-250
7	Drop Point, °C min.	160	180	180	180	180	180

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

LITHIUM COMPLEX GREASES



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL LITHCOM - 2, 2M

These greases are made from lithium complex soaps which have excellent mechanical stability & water tolerance. These can work smoothly under high temperature & pressure for a very long time & have also very good resistance to oil separation during operation.

PRODUCT FEATURES

- ★ Very high drop point.
- ★ Excellent thermal and structural stability.
- ★ Work excellently in very adverse conditions like high temperatures pressures.

APPLICATIONS

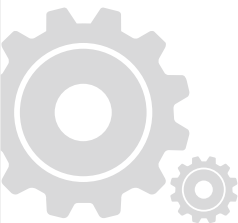
- ★ Plain and anti-friction bearings that works under normal and very severe condition.
- ★ Heavy duty ball and roller bearings for commercial vehicles.
- ★ Can widely be used in steel plants, mining and engineering industries.
- ★ Can run for a very long time even under adverse conditions.

PERFORMANCE LEVEL: IS 14847-2000 specifications.

PACKING: 180KG, 18KG

C H A R A C T E R I S T I C S			
S. NO.	PROPERTIES	PAL LITHCOM -2	PAL LITHCOM -2M
1	Appearance	Golden	Black
2	Consistency of worked grease, @25 ± 0.5°C, (60 double strokes) Change in consistency after 1,00,000 strokes	265-295	265-295
		Should not differ by more than 30 units from 60 strokes	
3	Drop Point, °C, min.	260	260
4	MoS ₂	--	3%
5	Soap Type	Lithium Complex	
6	Structure	Smooth & buttery	

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

LITHIUM COMPLEX GREASES



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

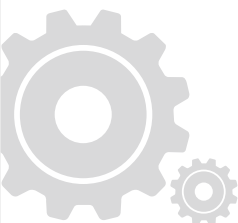
PAL LITHCOM GREASE EP-200 SERIES

These greases have a high level of chemical stability and offer excellent protection against rust and corrosion. These greases are extended service lithium complex greases intended for a wide variety of applications and severe operating conditions. These greases were designed to outperform conventional products by applying cutting edge, proprietary, and lithium complex manufacturing technology. They are formulated to provide excellent high temperature performance with superb adhesion, structural stability and resistance to water contamination.

PACKING: 180KG, 18KG

C H A R A C T E R I S T I C S						
PAL LITHCOM EP 200 SERIES						
S. NO.	PROPERTIES	200	220	221	222	222 (Moly) 223
1	Grade NLGI	00	0	1	2	2 3
2	Soap Type	←————— Lithium Complex —————→				
3	Base Oil Viscosity, @40°C	←————— 220 —————→				
4	Colour, visual	←————— Crimson Red —————→			Grey Black	Crimson Red
5	Copper strip corrosion, 24 h, 100°C, rating	1B	—	—	—	—
6	Copper strip corrosion, rating	—	1B	1B	1B	1B
7	Drop Point, °C min.	—	270	280	280	280
8	Four ball extreme pressure, weld, load, kgf	315	315	315	315	315
9	Molybdenum disulfide content, wt%	—	—	—	—	1 —
10	Consistency of worked grease, @25°C ± 0.5°C 0.1mm units (60 double strokes)	415	370	325	280	280 235
11	Role stability, penetration consistency change, 0.1mm	—	-15	-15	0	0 0
12	SKF Emcor rust test, distilled water	0.0	0.0	0.0	0.0	0.0 0.0
13	Timken OK Load,kg	40	40	40	40	40 40

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

MOLY GREASE



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL LIMOX

This grease is multipurpose lithium base grease, compounded with extreme pressure (EP) additives as well as finely dispersed molybdenum disulphide (MoS_2), which is very effective solid lubricant with extremely good anti-scuffing characteristics. This grease is also fortified with corrosion and oxidation inhibitors and additives that provide good film strength under medium-to-high loads.

PAL LIMOX grease provide good protection to contacting surfaces against rust, corrosion and wear as well as resistance to water wash-out. This grease also has an application in sliding motions where the prevention of scuffing is desirable and may be used in dry or moist conditions. This grease also possess good mechanical stability, load carrying properties, resistance to shock loads and overcomes boundary lubrication conditions, thus enhancing component life and increasing re-lubrication intervals.

Recommended for lubrication of heavily loaded slow/medium speed bearings of all types and is particularly useful in preventing bearing damage caused by excessive vibration or shock loads. When exposed to extreme operating conditions, particularly where contacting surfaces are exposed to very heavy pressure and shock loads and for continuous service up to 130°C this grease helps prevent the depletion of normal grease lubrication by a residual coating on the metal surface with molybdenum disulphide to give 'dry' or 'solid' lubrication.

It is not recommended for use in small, high speed ball and roller bearings.

These greases are compatible only with lithium base grease. Sealed bearings should be thoroughly cleaned before using grease described in this product bulletin.

PACKING: 180KG, 18KG

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL LIMOX
1	Appearance	Black
2	Soap Type	Lithium
3	MoS_2	3%
4	Base Oil Type	Mineral
5	Base Oil Viscosity, @ 40°C	120
6	Viscosity Index of base oil, min.	90
7	Cone Penetration, @ $25^\circ\text{C} \pm 0.5^\circ\text{C}$	265-295
8	Drop Point, $^\circ\text{C}$ min.	180

* The specifications are subject to variations/ development / customization.

INDUSTRIAL GREASES

HIGH TEMPERATURE GREASES



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PAL HTG - 1, 2

These greases are formulated from a special blend of high viscosity solvent refined base oil, thickened with bentonite clay. They have smooth structure, ability to retain their consistency under increasing temperatures; offer excellent resistance to chemicals such as mild acids and alkalis besides having good water repellency characteristics.

These greases meet IS 12790-1999 grade 3, U.S.Steel No.372 requirements and IPSS:1-09-008 specifications. These greases are suitable for the lubrication of machine elements, plain bearings and anti-friction bearings operating at high temperatures between 120°C to 250°C.

Recommended for use in industrial ball and roller bearings, kiln car wheel bearings, furnace door bearings, heat exchange motor bearings, oven conveyor bearings and other applications where extremely high temperatures are encountered. These greases gives optimum performance when used in applications up to 135°C with normal re-greasing, and up to 250°C with frequent re-greasing, making it suitable for use in a wide range of high temperature applications.

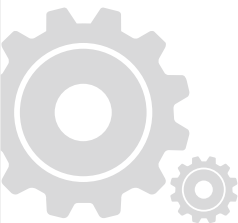
These greases are not compatible with soap type greases. Bearings must be thoroughly cleaned before changing over to Bentonite type greases.

PACKING: 180KG, 18KG, 1KG

C H A R A C T E R I S T I C S

S. NO.	PROPERTIES	PAL HTG-1	PAL HTG-2
1	Appearance	Dark Brown	Dark Brown
2	Soap Type	Bentonite Clay	
3	Base Oil Type	Mineral	
4	Base Oil Viscosity, @40°C	460	
5	Viscosity Index of base oil, min.	90	
6	Cone Penetration, @25°C ± 0.5°C	310-340	265-295
7	Drop Point, °C min.	280	280

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

EXTRA HIGH TEMPERATURE GREASES



Since 1985 **SUPER**
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Advanced Lubricant Chemistry

PAL EHT- 30, 60,100

These greases are multipurpose non-soap base grease made from a heat resistant bentonite thickener, compounded with EP additives and finely dispersed molybdenum disulphide (MoS_2), which is very effective solid lubricant with extremely good anti-scuffing characteristics. They are engineered to resist rust, oxidation and corrosion while reducing wear besides excellent ability to withstand high temperature and severe shock load conditions. In addition, these greases have excellent resistance to water washout and do not get affected by mild acids and alkalies.

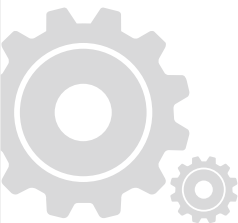
Recommended for lubrication in all areas of industrial, automotive, farm machinery and other off-road applications These greases meet IS 12790-1999 grade 3, U.S.Steel No.372 requirement and IPSS:1-09-008 specifications. These greases are widely used for the lubrication of machine elements, plain bearings and anti-friction bearings operating at high temperatures between 120°C to 250°C. These greases gives optimum performance when used in applications up to 135°C with normal re-greasing, and up to 250°C with frequent re-greasing, making it suitable for use in a wide range of high temperature applications.

These greases are not compatible with other greases. Former grease must be completely removed and cleaned from bearings before using greases described in this product bulletin.

PACKING: 180KG, 18KG, 1KG

C H A R A C T E R I S T I C S				
S. NO.	PROPERTIES	PAL EHT-30	PAL EHT-60	PAL EHT-100
1	Appearance	Black		
2	Soap Type	Bentonite		
3	MoS_2	3%	6%	10%
4	Base Oil Type	Mineral		
5	Base Oil Viscosity, @40°C	460		
6	Viscosity Index of base oil, min.	90		
7	Cone Penetration, @25°C \pm 0.5°C	265-295		
8	Drop Point, °C min.	280		

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

SILICONE GREASE



Since 1985 **SUPER**
Palco[®]
Advanced Lubricant Chemistry

PAL SNG-1000

This is premium quality lithium soap based multi functional synthetic grease having EP properties and wide operating temperature range of -40°C to 170°C; making it an ideal choice for aircraft and other applications where low temperatures are encountered. It demonstrates excellent resistance to extreme weather conditions and chemicals such as mild acids, alkalis and alcohols etc. It has good thermal, chemical, and structural stability including water repellency characteristics.

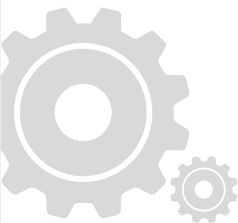
Recommended for lubrication of all types of bearings, operating under very high speed and high temperature conditions. It has very low starting torque and as such it is an ideal choice for home appliances like portable air cooler, washing machines etc. It is also suitable for electric motor of "H" insulation, water turbines, steam joints and conveyor system. It is an outstanding lubricant for plastic, rubber and glass materials, which normally deteriorates under prolonged contact with petroleum lubricants and greases. Due to excellent steam and moisture resistance properties it gives better service than other conventional lubricants in dyeing and textile finishing units.

It is not compatible with other greases and as such, this should be used only after complete removal of old grease of the bearings.

PACKING: 180KG, 18KG, 1KG

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL SNG-1000
1	Appearance	Smooth, Homogeneous & Milky
2	Soap Type	Lithium
3	Water Resistance	Excellent
4	Consistency (NLGI)	#2
5	Viscosity Index of base oil, min.	90
6	Cone Penetration, @25°C ± 0.5°C	265-295
7	Drop Point, °C min.	210
8	Copper Strip Corrosion	Negative

* The specifications are subject to variations/ development / customization.



INDUSTRIAL GREASES

GENERAL PURPOSE GREASE- CALCIUM BASE



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PAL CUP GREASE

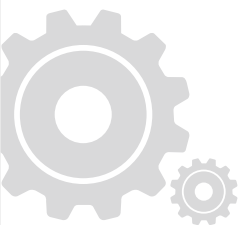
This grease is calcium soap based general purpose grease containing highly refined mineral oils and suitable tackifier having drop point of more than 100C. It is smooth, homogeneous, and free from objectionable odour, visible impurities and abrasive or deleterious particles.

Recommended for the lubrication of plain bearings operating under slow to medium-speed, medium-load and temperature up to 70C. Due to good water repellency characteristics, it is also recommended for the lubrication of the bearings and packing of water pumps immersing equipment's. Also recommended for application to exposed components where high temperature is not encountered.

PACKING: 180KG, 15KG

C H A R A C T E R I S T I C S		
S. NO.	PROPERTIES	PAL CUP GREASE
1	Appearance	Greenish Black
2	Soap Type	Calcium
3	Base Oil Type	Mineral
4	Cone Penetration, @25°C ± 0.5°C	280-300
5	Drop Point, °C min.	100

* The specifications are subject to variations/ development / customization.



Range of Palco Automotive Lubricants



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Palco
Advanced Lubricant Chemistry

CAR ENGINE OILS

ENERGY 20W50/20W40	SL/CF
PHG 20W50	SF/CD
GARNET-5W30	SN, ILSAC GF-5
LEOPARD-5W30/5W40	SN/CF

OTHER ENGINE OILS

PHB-20W40 (BOUNCER)	SC/CC
UNITRACK 20W	
ADF	

GEAR OILS

EP-90/140	GL-4
EP-80 W	GL-4
HYPOID 90/140	GL-5
HYPOID 80W90	GL-5
HYPOID 75W90	GL-5
HYPOID 85W140	GL-5
TRANSOL-A	TASA
TRANSFLUID C4-30	TES228

COOLANTS

MINT KOOL	JISK 2234
ICY KOOL	JISK 2234
ULTRA COOL	JISK 2234

PUMP SET OIL

PPS-2	SC/CC
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HEAVY DUTY ENGINE OILS

PPG4 - 15W40 / 20W40	CF-4/SJ
HITECH 15W40	CI-4/SL
HITECH PLUS 15W40	CI-4 PLUS
HITECH SYNTH 10W40	CH, CI-4/SL

SHOCK ABSORBER OIL

PAL FRONT FORK OIL	
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TWO WHEELER OILS

2T POWER / 2T POWER GOLD	TC/FB
2T SUPREME	TC/FC
4T BOSS 20W40 / 20W50	MA2/SJ
4T DART 10W30 / 20W40	MA2/SG
TRIDENT 20W40	MA2/SL
SOLITAIRE 20W40	MA2/SN
PANTHER 10W30	MA2/SL
GAJRAJ 15W50	MA2/SL
GAJRAJ PLUS 15W50	MA2/SN
TRAIO-10W30	MB/SL
TRAIO PLUS-5W30	MB/SN

DIESEL ENGINE OILS

PHD-10W	CD
PHD-40(CAPTAIN)	CD
PHD 15W40/ 20W40(COMMANDER)	CF/SF
TRACTOR SAMRAT 20W40/20W50	CF/SF
PMG-20W40 SHAKTIMAN	CF/SF

GREASES

AP-3 / AP-3 (RED)	NLGI-3
GP-3 / GP3 (GREEN)	NLGI-3
MEGALIFE (LLAP)	NLGI-3
RUBY GEL	NLGI-3
PMG-3	NLGI-3
W.B	NLGI-2
MP-3	NLGI-3
CHASSIS	NLGI-1

BRAKE FLUID / OIL SAVER

HAWK for Giriling Sys.	DOT-3 / DOT-4
ENGINE OIL SAVER	



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