



GREASE GUIDE

YOUR COMPREHENSIVE GUIDE TO PRO CHEM'S LINE OF GREASES.



Pro Chem offers a variety of site unique greases. Each one offers special properties that make it the ideal choice for various applications. Please use this comprehensive guide to better understand the grease we offer and to find the grease that will best suit your businesses needs.

Pro Chem Grease Compatibility Study											
	Aluminum Complex	Barium	Calcium	Calcium 12 Hydroxy	Calcium Complex	Clay	Lithium	Lithium 12 Hydroxy	Lithium Complex	Polyurea	
B=Borderline Compatibility	Aluminum Complex	<i>Pro Lube</i>	X	I	I	B	I	I	I	I	B
	Calcium		I	I	X	C	I	B	B	B	I
C=Compatible	Calcium 12 Hydroxy		B	C	C	X	B	B	C	C	I
I=Incompatible	Calcium Complex	<i>Tough Lube</i>	I	I	I	B	X	I	I	I	C
	Clay	<i>Temp-plate, Hi-Temp</i>	I	I	I	B	I	X	I	I	I
X=Same	Lithium		I	I	B	C	I	I	X	C	C
	Lithium Complex	<i>Litho-Lube, Magna Glide</i>	I	I	C	C	C	I	C	C	X
	Organo Clay-poly-meric complex	<i>Ultra Temp, OG Compound</i>	I	I	I	B	I	X	I	I	I

Temp Plate

This is an excellent non melt grease specially formulated with extreme pressure and anti wear additives to provide heavy-duty service. This product has extra tackifiers to provide excellent adhesive and cohesive properties. It resists most acids, salt, dirt, salt spray, steam, corrosion and oxidation.

COLOR: Red TIMKEN LOAD: 65 NLGI GRADE: 1&2 FPA: H2 DROPPING POINT: 550°F

Hi-Temp

This grease is fortified with special additives enabling it to withstand the heavy impact and pounding pressure common to heavy equipment. Our special additive package allows the grease to stay in place and not spatter or pound out of the bearing or fitting. Most greases manufactured today do not have this anti-spatter capability. A non-melt grease with superior water resistance. COLOR: Green TIMKEN LOAD: 65 NLGI GRADE: 2.5 FPA: H2 DROPPING POINT: 550°F MIL SPECS: MIL-G-18709, MIL-G-24139

Litho-Lube

A premium quality, multi purpose grease with an operating range up to 510°F. Excellent anti-wear properties and water resistance.

COLOR: Blue TIMKEN LOAD: 60 NLGI GRADE: 2 FPA: H2 DROPPING POINT: 500°F

Pro Lube

A specialty high temperature polymer grease engineered specifically for the food processing industry. It is a premium non-staining grease with a neutral petroleum odor compounded with EP and anti-wear additives as well as rust and oxidation inhibitors. It possesses good adhesion/cohesion properties and is water insoluble and very resistant to water washout.

COLOR: White TIMKEN LOAD: 50 NLGI GRADE: 2 DROPPING POINT: 500+°F

Ultra Temp

This synthetic blend grease is specially formulated for high temperature bearing applications up to 1100°F. This product is fortified with Molybdenum Disulfide graphite, and aluminum. It has a low-gumming base and no Droping Point so it will not run out when heated.

COLOR: Metallic Silver TIMKEN LOAD: 45-50 NLGI GRADE: 2 FPA: H2 MIL SPECS: MIL-G-18709, MIL-G-46006, MIL-G-24139

Tough Lube

This grease is carefully formulated using high viscosity base oil and over based calcium sulfonate complex thickener system fortified with Moly and special additives providing this grease with outstanding Extreme Pressure properties, exhibiting excellent water repellency, oxidation resistance, and a wide operating temperature range. This product is formulated with an innovative and synergistic combination of solid lubricants which physically adhere to the metal surfaces and form a strong protective film, preventing welding and reduce friction even under the most severe operating conditions such as very heavy shock loads. This grease is for virtually any multi-purpose or severe extreme pressure application.

COLOR: Gray TIMKEN LOAD: 65 NLGI GRADE: 2 DROPPING POINT: 550+°F

Magna Glide

This product is a premium, heavy duty, extreme pressure, multi-purpose grease manufactured with high performance base stocks, high quality lithium complex thickener, and nGlide® leading edge nano-engineered multi-component lubricant additives. nGlide® is a specially architected multi-component chemistry at sub-micron scale formulated into the E2M additive packages for engine oil, gear lubes and greases. Oxidation inhibitors provide excellent high temperature performance along with polymers to provide exceptional water washout resistance. This product helps to reduce maintenance expense through less wear on components, extended equipment life and less frequent greasing intervals

COLOR: Red TIMKEN LOAD: 70 NLGI GRADE: 2 DROPPING POINT: 550°F

OG Compound

OG COMPOUND is a dark black organo-clay compound, formulated for heavy industrial applications. It is designed mainly for the open gear application, but because of its extreme tackiness and extreme pressure characteristics lends itself to many different applications. It is made from mid-continent refined base oils and organo-clay gelling agents. This excellent compound is formulated with sub-micron size molybdenum disulphide. It is fortified with extreme pressure additives, anti-corrosion and anti-oxidation inhibitors, and tackifiers to provide excellent lubrication properties and anti-wear protection to metal surfaces.

COLOR: Black TIMKEN LOAD: 70 NLGI GRADE: 2.5 DROPPING POINT: Non-Melt

GLOSSARY

In addition to what we have previously described, here are a few other lubricating terms that you need to be familiar with:

- **Additive:** Any material added to a lubricating grease or oil to improve its performance. Examples are oxidation inhibitors, corrosion inhibitors or extreme pressure additives.
- **API (American Petroleum Institute):** Society organized to further the interest of the petroleum industry. It serves to clear information, conduct research, improve marketing conditions, etc. Developed API Service Classification for crankcase oils.
- **Bentonite:** A naturally occurring earth or clay. It is used as a grease thickener and produces a non-melt grease.
- **Boundary Lubrication:** Also known as thin film lubrication, boundary-lubricating conditions occur in the absence of a full fluid film, which completely covers up and thus separates two metal surfaces. It is in boundary lubricating conditions that anti-wear, and extreme pressure additives add to the lubricating qualities of the lubricant used.
- **Cohesive:** In terms of lubricants, it refers to the molecular attraction of the lubricant to itself, causing the lubricant to stick together, thus resisting flow (running).
- **Consistency:** Just as viscosity grade is the basic property of lubricating oil, consistency is the basic property of grease. It is the softness or hardness, i.e., the degree to which grease resists displacement under the application of force.
- **Corrosion:** Chemical attack or action on metals by acids, oxygen alkalis, chlorine, or other chemicals. This is distinct from metal destruction by wear.
- **Corrosion Inhibitor:** Additive for protecting lubricated surfaces against chemical attack by water, acids or other contaminants.
- **Drop Point:** The dropping point of grease is the temperature at which a drop of grease falls from the opening of a test cup under prescribed test conditions.
- **E.P. (Extreme Pressure) Agents:** An additive introduced into a lubricator to impart load carrying, or anti-weld qualities.
- **E.P. (Extreme Pressure) Lubricants:** Lubricants that have E.P. against added, or which have inherent properties which permit them to carry appreciably higher loads than those carried by other lubricants.
- **Film Strength:** The ability of a film of lubricant to resist rupture due to load, speed and temperature.
- **Fire Point:** The temperature at which oil will burn continually when exposed to a flame under atmospheric conditions.

- **Flash Point:** The lowest temperature at which the air-vapor mix of a petroleum product or other combustible fluid with “flash” in the presence of a small flame.
- **Food Plant Lubricants:** Special lubricants that are designed to be used where incidental food contact may occur. These lubricant ingredients must be approved by the Food and Drug Administration (FDA) and the United State Department of Agriculture (USDA). This approval is not an endorsement of that product by these agencies, but only indicates that they meet certain standards.
- **Hydro-Dynamic Lubrication:** Also known as full fluid film lubrication, it occurs because of the “pumping” action developed by the sliding of one surface over another in contact with a lubricating oil. Adhesion to the moving surface draws the oil into the high-pressure area between the surfaces, and viscosity retards the tendency to squeeze the oil out. If the pressure developed by this action is sufficient to completely separate the two surfaces, full fluid film lubrication is said to occur.
- **Lubricant:** A fluid, plastic or solid material capable of forming a friction reducing film between two rubbing surfaces. The most common lubricants are petroleum oils, greases and solid lubricants of which molybdenum disulfide is a prime example.
- **NLGI Number:** A numerical scale for classifying the consistency range of lubricating greases, and based on the ASTM penetration number, BLCI grades are in order of increasing consistency (hardness) as follows: NLGI Number: Softest 00 - Hardest 6 Oxidation: A form of chemical deterioration to which petroleum products, like most other organic materials, are subject. Oxidation involves the combining of oxygen with carbon, sulfur and other elements in the oil. It results in breaking down the oil.

NLGI Grade	Worked Penetration After 60 Strokes at 25°C (0.1mm)	Appearance	Food Consistency Comparison
000	445-475	Fluid	Ketchup
00	400-430	Fluid	Applesauce
0	355-385	Very Soft	Brown Mustard
1	310-340	Soft	Tomato Paste
2	265-295	Moderately Soft	Peanut Butter
3	220-250	Semi-Fluid	Vegetable Shortening
4	175-205	Semi-Hard	Frozen Yogurt
5	130-160	Hard	Smooth Pate
6	85-115	Very Hard	Cheddar Cheese Spread

- **Oxidation Inhibitor:** Substance added to petroleum oils to retard the oxidation process
- **Polymer:** (Relative to Lubricants) are large molecules made up by combining two or more smaller molecules. They are added to lubrication oils to impart special properties to the finished blend. Example is viscosity improvers.
- **Pour Point:** Lowest temperature (°F) at which oil will flow. It is a factor of significance in cold weather start up.
- **Rust Inhibitor:** Substance added to petroleum oils to prevent rust or oxidation from occurring on metal surfaces, It forms a thin film, which prevents oxygen from contacting metal surfaces, thus preventing rust.
- **SAE (Society of Automotive Engineers):** Organization responsible for the establishment of many US automotive and aviation standards, including the classification of crankcase oil and gear oil viscosity.
- **Timpken load:** Is a measure of 1,000 PSI. A Timpken Load of 60 would refer to 60,000 PSI. The higher the Timpken Load Number the better the grease should hold up under pressure.
- **Viscosity:** Measure of fluids resistance to flow. It is ordinarily expressed in terms of the time required for a standard quantity of the fluid at a certain temperature to flow through a standard size opening. The technical or laboratory term for this measurement is called Saybolt Universal Seconds (SUS).
- **Viscosity Grade:** Term used with petroleum oils, which defines a particular oil by a viscosity range.
- **Wear:** The removal of materials from surfaces in contact with other surfaces
- **Abrasive Wear:** Removal of materials from surfaces in motion by a cutting or abrasive action of a hard particle between the surfaces (usually a contaminant).
- **Adhesive Wear:** Removal of materials from surfaces in motion as a result of surface contact. Welding, galling and scuffing are examples.
- **Corrosive Wear:** Removal of materials by corrosive action. Example: acid corrosion and rust.

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