

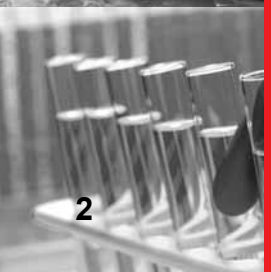
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FOOD GRADE LUBRICANTS







Matrix Specialty Lubricants

Matrix Specialty Lubricants is a company based in The Netherlands, producing and marketing specialty lubricants and greases.

Matrix Specialty Lubricants was created by a nucleus of industry specialists with a collective experience of many years working for major oil companies. Our vision is to harness new technology and with the expertise of our chemists provide the correct lubricant for each application. It is just a matter of knowledge.

Specific product information is available in our brochures and most of the technical data sheets can be found on our website; www.lubes-portal.com. Our main products are divided into groups with the most common being presented in our brochures. The most up to date information can always be found on our website.

Matrix
specialty lubricants



Bio lubricants
This group of products includes biodegradable hydraulic, gear, and other lubricants as well as a range of greases and concrete mould release agents. High performance, long life, low toxicity and biodegradabilty are key factors within this product group.



Compressor, vacuum and refrigeration fluids
A comprehensive range of gas and refrigeration compressor fluids providing long life and low maintenance costs in combination with high efficiency. The range consists of mineral, and synthetic (hydro treated, PAO, POE, Alkyl Benzenes, Di-Ester, Ester, PAG, PFPE) based lubricants with a performance up to 12.000 hour drain intervals.



Food grade lubricants
A complete range of fluids, lubricants and greases for applications whenever a food grade lubricant is required. The high performance Foodmax® line is NSF and InS approved and includes a range of spray cans.



Industrial specialty products
This product group includes a range of specialty chain lubricants, gear oils, transformer oils and many more products. All the products exceed performance expectations contributing to lower maintenance costs.



Grease and paste
An extensive range of specialty greases and pastes, including polyurea, calcium sulphonate, aluminium, barium, silicon, inorganic and PFPE. By using the latest technology and materials we are able to provide high performance and problem solving products.



Specialty base oils and dispersions
These base oils are used in the formulation of metalworking fluids, biodegradable hydraulic fluids, top tier 2 stroke engine oils, mould release agents and many more. They include DTO, TOFA and various types of esters. Another range include both technical and pharmaceutical white oils.
The Matrix line of D-MAX colloidal dispersions contain products based on graphite, MoS2, PTFE and Boron Nitride (hBn). These can be used as additives, lubricants and processing products.

Matrix
specialty lubricants








Food grade lubricants

The food processing industry presents unique challenges to lubricant formulation engineers, lubricant marketers, plant lubrication engineers and equipment designers. It is never desirable for lubricants to be allowed to contaminate raw materials, work-in-progress or finished product, the consequences of a lubricant contaminated product are rarely more acute than in the food processing industry. As such, lubricants used in this industry have requirements, protocols and performance expectations that exceed typical industrial lubricants.
Matrix Specialty Lubricants has developed an extensive range of food grade lubricants which frequently outperform high tech industrial lubricants and greases. Matrix continues to develop and add new products to the existing extensive portfolio. For any special product request do not hesitate to seek the assistance of your local Matrix representative.

NSF and InS are certification bodies which approve lubricants and greases according to various categories. In the overview below you will find an explanation of the most common lubricant approvals.

H-1 Lubricants
Universally applied in applications where incidental contact with food products is likely

HX-1 Lubricants
Use in lubricants with incidental food contact

H-2 Lubricants
Used on operating equipment that is vital to the manufacturing plant, but will not come in contact with food products. Will not contain: Perfume, Pb, Sb, Cd or Ni additives

HT-1 Heat Transfer Fluids
Universally applied in applications where incidental contact with food products is likely

H-3 Soluble Oils
These products are chemically acceptable for applications to hooks, trolleys and similar equipment to clean and prevent rust. Those portions of the equipment that contact edible products must be made free of the mixture before re-use

3-H Release Agents
Lubricants and release agents that will often come in contact with food. Unlike H-1, 3-H lubricants can be used as food additives (the 10 PPM rule does not apply) (i.e. divider oil)

InS H1 InS Registered
InS HT1 InS Registered
InS HX-1 InS Registered
InS 3H InS Registered
NSF Nonfood Compounds Program Listed H1
NSF Nonfood Compounds Program Listed HX1
NSF Nonfood Compounds Program Listed HT1
NSF Nonfood Compounds Program Listed 3H





General lubricants

The lubrication of numerous lubrication points found in the food industry.



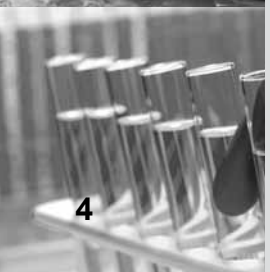
Hydraulic lubricants

A large proportion of equipment in the food processing industry is operated by hydraulic systems. Although hydraulic systems are used relatively far from the process, the risk of contamination is large because the high operating pressures can cause leakages to travel a long distance. has developed 3 types of food grade hydraulic fluids to suit specific performance requirements.











Foodmax® Basic

Paraffin food grade oil for general lubrication purposes. Can be used in authorized industrial operations wherever there is the possibility of food contact (for both humans or animals). Foodmax® Basic can be used as a general lubricant in various applications in the food processing industry. Additionally it gives excellent results as general lubricant in the textile, knitwear, food and tin container industry, whenever very high cleanliness level is required.

Foodmax® AW

Foodmax® AW is non toxic and formulated using specially selected highly refined base stocks in combination with the latest additive technology. Foodmax® AW is suitable for applications where incidental contact with food or raw materials is possible during the production process. Due to the very low pour point Foodmax® AW PAO is better suited to low temperature applications in comparison to Foodmax® AW. Foodmax® AW 22 is a higher performance alternative to soap/water mixtures for the lubrication of conveyor belts in the beverage industry.

Foodmax® AW PAO

Foodmax® AW PAO is non toxic and formulated using specially selected synthetic base stocks in combination with the latest additive technology. Foodmax® AW PAO is suitable for applications where incidental contact with food or raw materials is possible during production. Because of its great performance characteristics and carefully chosen additives, Foodmax® AW PAO oils can be used in most applications in the food manufacturing and processing industry.

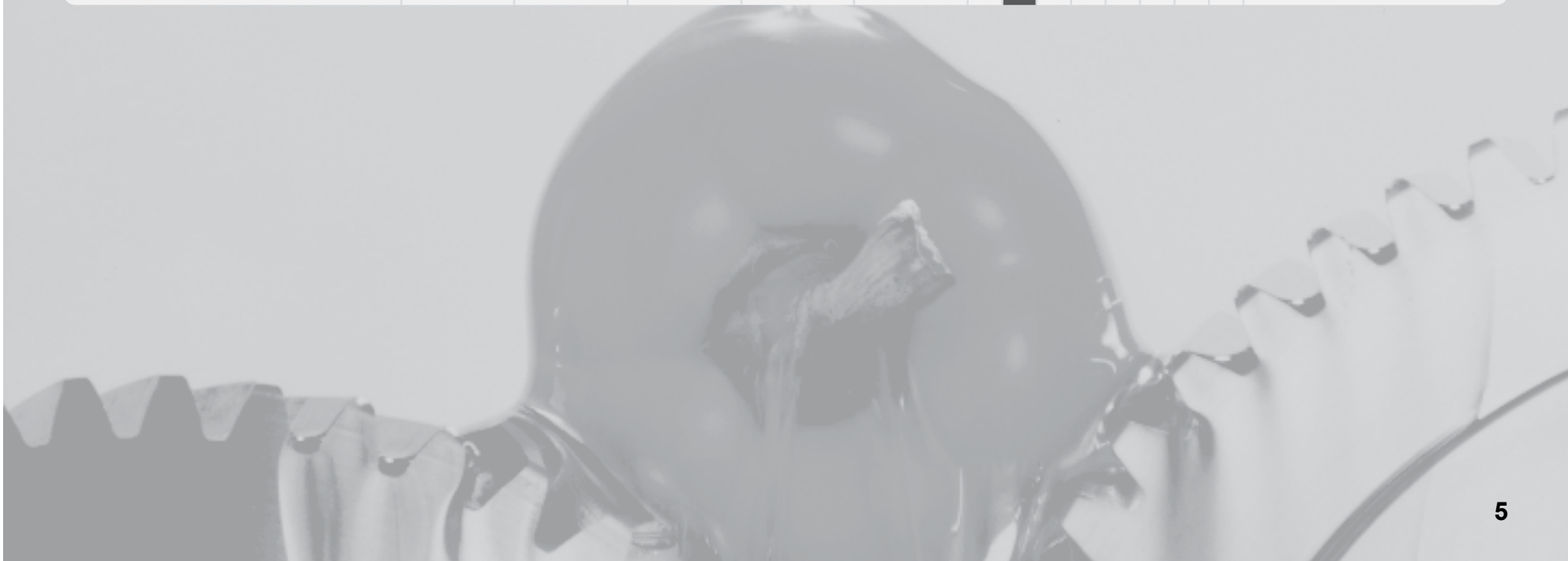
Foodmax® FRF

Foodmax® FRF is a synthetic food grade fire resistant hydraulic fluid formulated to provide both fire resistance and excellent lubrication. Unlike most water glycol based formulations, Foodmax® FRF is easy to maintain, has an exceptionally long fluid life and offers superior pump protection. No special change out procedures are necessary to switch from a standard mineral oil hydraulic fluid to Foodmax® FRF and, unlike water glycol formulations, pump ???deration??? is not required. Its' exceptional oxidative stability, corrosion resistance, and anti-wear properties make Foodmax® FRF particularly well suited for applications where other fire resistant fluid technologies are restricted. Check out the demonstration video on YouTube or our website searching for Foodmax® FRF.

Matrix specialty lubricants

Foodmax® selection table

	Foodmax®	ISO VG	Kinematic Viscosity 40 °C	VI	Pour Point °C	Flash Point °C	Basic Lub	Hydraulic	Gear	Chain	Compressor	Vacuumpump	Dry Conveyor	Heat Transfer	NSF / InS approvals
1	Foodmax® Basic 15	15	14-18	>100	-9	180	■								H1, HX1, 3H
2	Foodmax® Basic 32	32	27-33	>100	-9	190	■								H1, HX1, 3H
3	Foodmax® Basic 68	68	60-70	>100	-9	210	■								H1, HX1, 3H
4	Foodmax® AW 22	22	19-24	105	-24	165		■					■		H1
5	Foodmax® AW 32	32	29-35	105	-24	170		■							H1
6	Foodmax® AW 46	46	41-50	105	-21	180		■							H1
7	Foodmax® AW 68	68	61-74	105	-21	200		■							H1
8	Foodmax® AW 100	100	90-110	100	-21	215		■	■						H1
9	Foodmax® AW PAO 22	22	22	127	<-60	200		■							H1
10	Foodmax® AW PAO 32	32	31,3	141	<-60	222		■							H1
11	Foodmax® AW PAO 46	46	48,1	143	<-57	248		■	■						H1
12	Foodmax® AW PAO 68	68	68	140	<-58	258		■	■	■					H1
13	Foodmax® AW PAO 100	100	101	144	<-55	268		■	■	■					H1
14	Foodmax® FRF 46	46	50	115	-44	274		■							H1





Gear lubricants

Gearboxes are seen everywhere in food processing plants. Most of the time they are relatively small and will operate at both low and high temperatures. Depending on the circumstances and type of gearbox the right choice can be made from Foodmax® Gear, Gear PAO or Gear PAG.



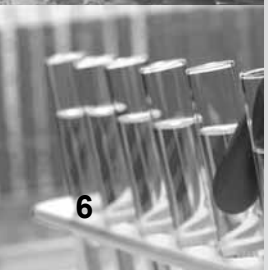


Compressor & Vacuumpump

Compressed air and vacuum pumps are vital components in any food production or processing plant. Cleanliness of the equipment, temperature resistance and lifetime of the lubricant can influence the reliability of compressors and vacuum pumps to a great extent.







Foodmax® Gear

Food grade range of lubricants for gears, bearings and transmissions
Foodmax® Gear is a range of lubricants in which a combination of the latest base stock technology together with special additives delivers a very high performance. All base material used for the formulation is non-toxic and food grade. Also suitable as chain oil when a non sticky lubricant is required.

Foodmax® Gear PAO

Range of fully synthetic food grade gear oils, particularly suited for the lubrication of drive chains, conveyor chains, gearboxes and reduction units. Foodmax® Gear PAO 680-1000 contains special additives that extend relubrication intervals. These lubricants can also be used as chain oils. Foodmax® Gear PAO is specially designed for low temperature applications.

Foodmax® Gear PAG

Foodmax® Gear PAG is a synthetic oil with excellent anti wear properties, high stability to oxidation and a low pour point. It is neutral to metals including aluminum alloys and copper. It resists mechanical shearing, is very stable to ageing and has very good viscosity temperature characteristics. Foodmax® Gear PAG is suitable for the most severely loaded gearboxes. Foodmax® Gear PAG is not miscible with other synthetic and mineral fluids.

Foodmax® Air

The superior performance characteristics of Foodmax® Air mean it can be used safely in all types of compressors and vacuum pumps. The product is based on a fully synthetic base oil and specially selected additives. Foodmax® Air has an excellent oxidation stability and long life at very high temperatures. Foodmax® Air 32 can be used as an airline lubricant.

Foodmax® Air PAO

Foodmax® Air PAO oils are food grade, non-toxic synthetic oils developed for all types of compressors used in the food, beverage and pharmaceutical industries.

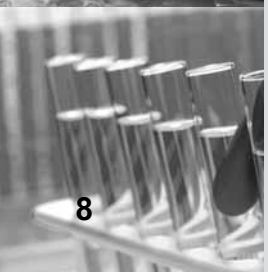
Matrix specialty lubricants

Foodmax® selection table

Foodmax®	ISO VG	Kinematic Viscosity 40 °C	VI	Pour Point °C	Flash Point °C	Airline Lub	Basic Lub	Hydraulic	Gear	Chain	Compressor	Vacuumpump	NSF / InS approvals	Temp.			Load	
														High	Medium	Low	High	Medium
Foodmax® Gear 68	68	66	130	-12	206			■	■				H1		■			■
Foodmax® Gear 150	150	135-165	113	-12	253				■				H1		■			■
Foodmax® Gear 220	220	198-242	116	-12	254				■	■			H1		■			■
Foodmax® Gear 320	320	288-352	118	-12	256				■				H1		■			■
Foodmax® Gear 460	460	414-506	121	-18	230				■				H1		■			■
Foodmax® Gear PAO 150	150	149	136	-35	275				■				H1	■	■	■		■
Foodmax® Gear PAO 220	220	218	135	-35	280				■				H1	■	■	■		■
Foodmax® Gear PAO 320	320	322	134	-30	280				■				H1	■	■	■		■
Foodmax® Gear PAO 460	460	485	133	-30	280				■				H1	■	■	■		■
Foodmax® Gear PAO 680	680	682	136	-30	282				■				H1	■	■	■		■
Foodmax® Gear PAO 1000	1000	998	138	-28	284				■	■			H1	■	■	■		■
Foodmax® Gear PAG 220	220	198 - 242	> 210	< -35	> 240				■				H1	■	■	■	■	■
Foodmax® Gear PAG 320	320	288 – 352	> 220	< -35	> 240				■	■			H1	■	■	■	■	■
Foodmax® Gear PAG 460	460	414 – 506	> 230	< -30	> 245				■				H1	■	■	■	■	■
Foodmax® Air 32	32	38,2	115	-39	222	■					■		H1	■	■			
Foodmax® Air 46	46	46,8	106	-35	229						■		H1	■	■			
Foodmax® Air 68	68	67,5	107	-30	240						■		H1	■	■			
Foodmax® Air 100	100	101	107	-25	265						■	■	H1	■	■			
Foodmax® Air 150	150	149,1	123	-15	269						■	■	H1	■	■			
Foodmax® Air PAO 46	46	46	>130	-25	150						■		H1	■				
Foodmax® Air PAO 68	68	68	>130	-30	150						■		H1	■				
Foodmax® Air PAO 100	100	100	>130	-30	150						■	■	H1	■				





Chain & Conveyors lubricants

Food is very often transported in a food production plant using chains and conveyors. As these chains are exposed to water, cleaning agents and extreme temperature variations it is extremely important to select the right product.



Foodmax® Chain

Fully synthetic food grade oil with characteristics that make it particularly suited for the lubrication of drive chains and conveyor chains, gearboxes and reduction units. Contains special additives that extend relubrication intervals significantly; and does not contain any mineral components. Foodmax® Chain can be used in incidental contact with food and raw materials.

Foodmax® Chain LT

Foodmax® Chain LT is based on a blend of synthetic hydrocarbons and is inhibited against oxidation to give a long wet film life over a wide temperature range.
Foodmax® Chain LT is designed for the lubrication of conveyor chains and bearings running continuously at low temperatures, down to minimum of – 40 °C. Foodmax® Chain LT is also suitable for spiral freezers.

Foodmax® Chain HT

Foodmax® Chain HT is based on highly polar biodegradable base oil and is inhibited against oxidation to give a long wet film life at high temperatures. The highly polar molecules strongly adhere to the surface and withstand high temperatures, at the same time separating the moving parts thanks to its highly viscous lubricating film which is maintained at these high temperatures. Foodmax® Chain HT can resist up to 250°C, and is therefore suitable for bread ovens in bakeries.

Foodmax® Mammut Oil 25

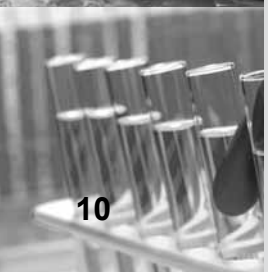
Foodmax® Mammut Oil 25 is a food grade product formulated to dissolve sugar from chains, slides and moulds. It has been developed specially for the confectionary market and any application involving sugar. Foodmax® Mammut oil 25 washes sugar off before lubricating and protecting the chain.

Foodmax® Chain selection table

Foodmax® Chain	Temp. range °C								ISO VG	Kinematic Viscosity 40 °C	Kinematic Viscosity 100 °C	VI	Pour Point °C	Flash Point °C	4-ball wear test	
	-45	-30	-15	0	50	100	150	250							Welding load, kg	Wear scar dm, 40 kg, 1 hr, mm
Foodmax® Chain 68			■	■	■	■	■		68	66	9,8	130	-12	206	160	
Foodmax® Chain 150			■	■	■	■	■		150	135-165	16,5	120	-18	> 230	160	
Foodmax® Chain 220			■	■	■	■	■		220	198-242	22,2	118	-12	> 240	160	
Foodmax® Chain LT	■	■	■	■	■	■			-	15	-	>140	-45	150	200	0.45
Foodmax® Chain HT			■	■	■	■	■	■	325	325		>140	-30	> 300	200	0.45
Foodmax® Mammut Oil 25			■	■	■	■	■	■	25	25			-20	>100		





Greases

The use of grease in the food production process is almost endless. This in combination to wet environments, excessive cleaning with chemicals and extreme temperature variations makes choosing the right grease of major importance. In the past, food grade greases were developed to be non toxic and provided minimum performance. The latest generation of Matrix calcium sulphonate food grade greases however are outperforming most high tech industrial grades.
Many happy customers report that the performance of these greases are almost too good to be food grade.



Foodmax® Grease ALU-M

Foodmax® Grease ALU-M is a range of HT-base oil aluminum complex greases designed for the lubrication of almost any application which requires a food grade lubricant. The Foodmax® Grease ALU-M series are formulated with complex soap, additive package and authorized solid lubricants. They possess excellent lubricating properties and a high water resistance, perfect when a combination of water and high load resistance is required. Foodmax® Grease ALU-M series can be used in a large variety of applications including bearings operating within a temperature range of -35 to 150 ºC. The speed factor is approx 5 x 105 in the presence of high loads and water.

Foodmax® Grease ASP

Foodmax® Grease ASP 2 is an aluminum complex grease designed for the lubrication of almost any type of application which requires a food grade lubricant. Foodmax® Grease ASP 2 is formulated with a complex soap, synthetic base oil, additive package and solid lubricants. Thanks to the superior resistance to water ASP 2 is very suitable for the lubrication of chains operated in very wet conditions such as food conveyor chains. Foodmax® Grease ASP can resist higher temperatures and loads in comparison to Foodmax® Grease ALU-M.

Foodmax® Grease CAS M2

Foodmax® Grease CAS M 2 is a member of a family of technologically advanced greases which have been developed by complexing modified overbased calcium sulfonates. This technology is characterized by exceptional mechanical stability, high dropping point, high load carrying performance, reduced wear and excellent resistance to water and corrosion. This technology equals and, in many ways, outperforms other premium, high temperature greases such as lithium complex and aluminum complex.

Foodmax® Grease CAS S LS

Foodmax® Grease CAS S 1 LS is a member of a family of technologically advanced greases which have been developed by complexing modified overbased calcium sulphonates. This technology is characterized by exceptional mechanical stability, high dropping point, high load carrying performance, reduced wear, and excellent resistance to water and corrosion. This technology equals and, in many ways, outperforms other premium, high temperature greases such as lithium complex, aluminium complex and polyurea. NLGI 1 is available for better pumpability requirements.

Foodmax® Grease CAS S2 HS

Foodmax® Grease CAS S 2 HS is a member of a family of technologically advanced greases which have been developed by complexing modified overbased calcium sulfonates. This technology is characterized by exceptional mechanical stability, high dropping point, high load carrying performance, reduced wear, and excellent resistance to water and corrosion. This technology equals and, in many ways, outperforms other premium, high temperature greases such as lithium complex and aluminum complex.

Foodmax® Grease TF-S

Foodmax® Grease TF-S is a synthetic food grade grease containing PTFE. The combination of the synthetic base fluid and added solids reduces the friction to a great extent and will provide lubrication under all circumstances including boundary lubrication. Shows excellent compatibility with elastomers and plastics.

Foodmax® Grease Fluor HT

Foodmax® Grease Fluor HT 2 is a non-flammable white grease developed from a perfluoroalkyl-polyether type oil, with micronised PTFE as thickener and anti-corrosion additive. It is physically and chemically totally inert except for fluorinated solvents and thermal and ionising radiation. All the raw materials used in the manufacturing process appear in the positive list of the FDA (Food and Drugs Administration).

Foodmax® Grease SI

Very adherent silicone grease, designed to provide perfect sealing and regular smooth operation in mono-drive taps. Long lifetime. Perfect water insolubility. Extends the working life and reduces wear of the ceramic disks. Approved by health authorities approval and Water Byelaws Scheme approval per BS-6920.

Foodmax® Assembly Paste

White, non-toxic, grease-like compound with a high solid lubricant content designed for use as an assembly lubricant for lubricating bushes, sliding surfaces, small open plastic or metal gears and anti-seize compound for threaded fasteners. The compound is designed to prevent damage during start up and protect against premature wear during the running-in period.

NLGI: classifying stiffness of a Grease.

NLGI class	Worked penetration penetration number	General consistency
000	445-475	Liquid
00	400-430	Mildly liquid
0	355-385	Semi liquid
1	310-340	Very weak
2	265-295	Weak
3	220-250	Semi solid
4	175-205	Solid
5	130-160	Very solid
6	85-110	Firm



Foodmax® Grease Selection table: behaviour & applications

Foodmax®		Grease type			Behaviour to Physical agents							Behaviour to Chemical agents							Application								
					Loads			V	Speed																		
Very Suitable Suitable ! Suitable with limits																											
Product		Thickener	Base Oil	Solid Lub.	Low	Medium	High	Vibrations	Low	Medium	High	Cold water	Hot water	Salt water	Vapour water	Alkali	Acid	Hydrocarbons	Bearings	Slider Bearings	Open gears	Closed gears	Chains & Joints	Valves & Taps	Sideways	Joints & Gaskets	Wires
1	Foodmax® Grease ALU M	AC	SS																								
2	Foodmax® Grease ASP	AC	SS																								
3	Foodmax® Grease CAS M 2	Cas	SS																								
4	Foodmax® Grease CAS S LS	Cas	S																								
5	Foodmax® Grease CAS S 2 HS	Cas	S																								
6	Foodmax® Grease Clear	I	S	P																							
7	Foodmax® Grease Fluor HT	PTFE	Pe	P																							
8	Foodmax® Grease SI	I	Si																!								
9	Foodmax® Assembly Paste	PTFE	SS	P															!	!							

AC = Aluminium Complex, Ca = Calcium, Cas = Calcium Sulphonate, SS = Semi Synthetic, S = Synthetic, Si = Silicon, Pe = Perfluorinated , P=PTFE, I=inorganic

Foodmax greases are packed in special cartridges. Due to their special cap you do not touch the grease while using and equipment will stay cleaner. Besides regular grease pumps, Foodmax cartridges can als be used in special guns which make easy and clean appliance of the grease possible



1: Take a Matrix Cartridge



2: Pull off the strap from the cap



3: The cap will become a piston



4 & 5: Pull off the cap on the other side of the cartridge

Foodmax® Grease Selection table: temperature range & NLGI classifications

Foodmax®	NSF / InS approvals	NLGI					°C													
Product		00	0	1	2	3	-70	-50	-40	-30	-20	-10	0	50	80	120	160	220	280	300	1000
1 Foodmax® Grease ALU M	H1	■	■	■	■						■	■	■	■	■	■	■				
2 Foodmax® Grease ASP	H1				■						■	■	■	■	■	■	■				
3 Foodmax® Grease CAS-M2	H1				■						■	■	■	■	■	■	■	■			
4 Foodmax® Grease CAS-S2 LS	H1			■	■					■	■	■	■	■	■	■	■	■	■		
5 Foodmax® Grease CAS-S2 HS	H1				■					■	■	■	■	■	■	■	■	■	■		
6 Foodmax® Grease TF-S	H1				■				■	■	■	■	■	■	■	■	■				
7 Foodmax® Grease Fluor HT	H1				■					■	■	■	■	■	■	■	■	■	■	■	
8 Foodmax® Grease SI	H1	■	■	■		■		■	■	■	■	■	■	■	■	■	■	■			
9 Foodmax® Assembly Paste	H1				■				■	■	■	■	■	■	■	■	■	X	X	X	X

X = as an anti seize



4 & 5: Pull off the cap on the other side of the cartridge



6: Click on the special nozzle



7: Place the cartridge and nozzle in the grease gun



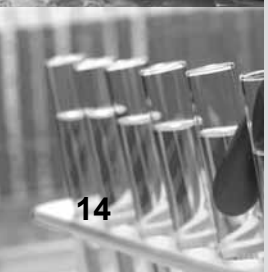
8: The gun and cartridges are ready for clean operation



9: Use the closing cap to avoid contamination





Miscellaneous food grade

In this section you will find food grade heat transfer fluids. They very often represent a high risk of causing contamination since a leakage may not be discovered for a long time. Also includes general purpose products such as Foodmax® Silicon oils, Foodmax® DDO and Foodmax® Clean.

Foodmax® DDO

Foodmax® DDO is produced from highly refined vegetable based oil and special additives to warrant a trouble free operation when used as a dough divider oil.

Foodmax® HTF 32

Foodmax® HTF (Heat Transfer Fluid) fluids are made with food grade synthetic base fluids. They are formulated to be very thermally and oxidative stable and are further enhanced with proprietary additives that greatly extend their life over normal and other synthetic food grade heat transfer fluids. They provide exceptional performance in a number of food related heat transfer applications.

Foodmax® Silicon

Foodmax® Silicon are special fluids developed to lubricate applications which suffer from high temperatures and where water and other contaminants are found.
Foodmax® Silicon can also be used as heat transfer fluids in circulating systems and hot bath applications.

Characteristics

Foodmax®	ISO VG	Pour Point °C	Flash Point °C	NSF / InS approvals
Foodmax® DDO	46	6	>260	3H, H1
Foodmax® HTF 32	32		223	H1, HT1
Foodmax® Silicon 50	50	< -50	>300	H1
Foodmax® Silicon 100	100	< -50	>300	H1
Foodmax® Silicon 10000	200	< -50	>300	H1

Foodmax® Clean

Foodmax® Clean is a general purpose cleaner and degreaser formulated from a citrus derivative which is non toxic, biodegradable and InS C1 approved.








Foodmax® Spray

Aerosols are easy to use and allow mechanics to apply lubricants and greases at the right concentration in the correct location.

Foodmax® Multi Spray

Foodmax® Multi Spray is a very adhesive white food grade lubricant in a spray package. The spray contains a food grade synthetic fluid as well as a 4% food grade solid lubricant (PTFE, commonly known as Teflon). Lubrication of chains, conveyors, slides, joints, mould slides, small bearings or any other application which requires a food grade high performance lubricant. Also suitable for textile, paper and graphic arts, plastic and elevator industry. Also provides excellent performance in motorcycle chain lubrication and in high speed go-kart transmission chains.

Foodmax® Easy Spray

Foodmax® Easy Spray is a universal lubricant for use in food processing equipment where incidental contact with food may occur. Suitable for most applications where medium load resistance is required.
Foodmax® Easy Spray can be used as a non sticky general lubricant for chains, bearings and slides with low load, hinges and as a cleaning and conserving agent for stainless steel. Additionally Foodmax® Easy Spray can be used as a food grade mould release oil.

Foodmax® Silicon Spray

Foodmax® Silicon Spray is a silicone based, anti-adherent and lubricating fluid with very high temperature resistance. H1 for use in food processing equipment where incidental contact with food may occur. Excellent lubricant for packaging transport lines and for low load applications. Also suitable as anti adherent for any type of equipment, demoulding of all type of plastics and rubbers and surface polisher.

Foodmax® Grease Spray

Foodmax® Grease Spray is a high performance food grade white grease, sticky and water/steam resistant. Suitable for open gears, slides, conveyors, bearings etc. Also suitable as assembly paste. Temperature range -40 to 180 ºC. NSF-H1 for the use in food processing equipment where incidental contact with food may occur.

Foodmax® DDO Spray

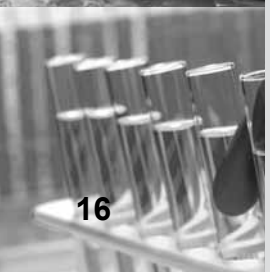
Foodmax® DDO is produced from highly refined vegetable based oil and special additives to warrant a trouble free operation when used as a dough divider oil.

Foodmax® DWF Spray

Foodmax® DWF is a food grade multi-purpose penetrating lubricant with excellent water displacing properties. It is a non-toxic lubricating, penetrating and de-watering lubricant and is ideal for use on light loaded chains, bearings and slides in food and clean environments. Working temperature -30 °C to 145 °C





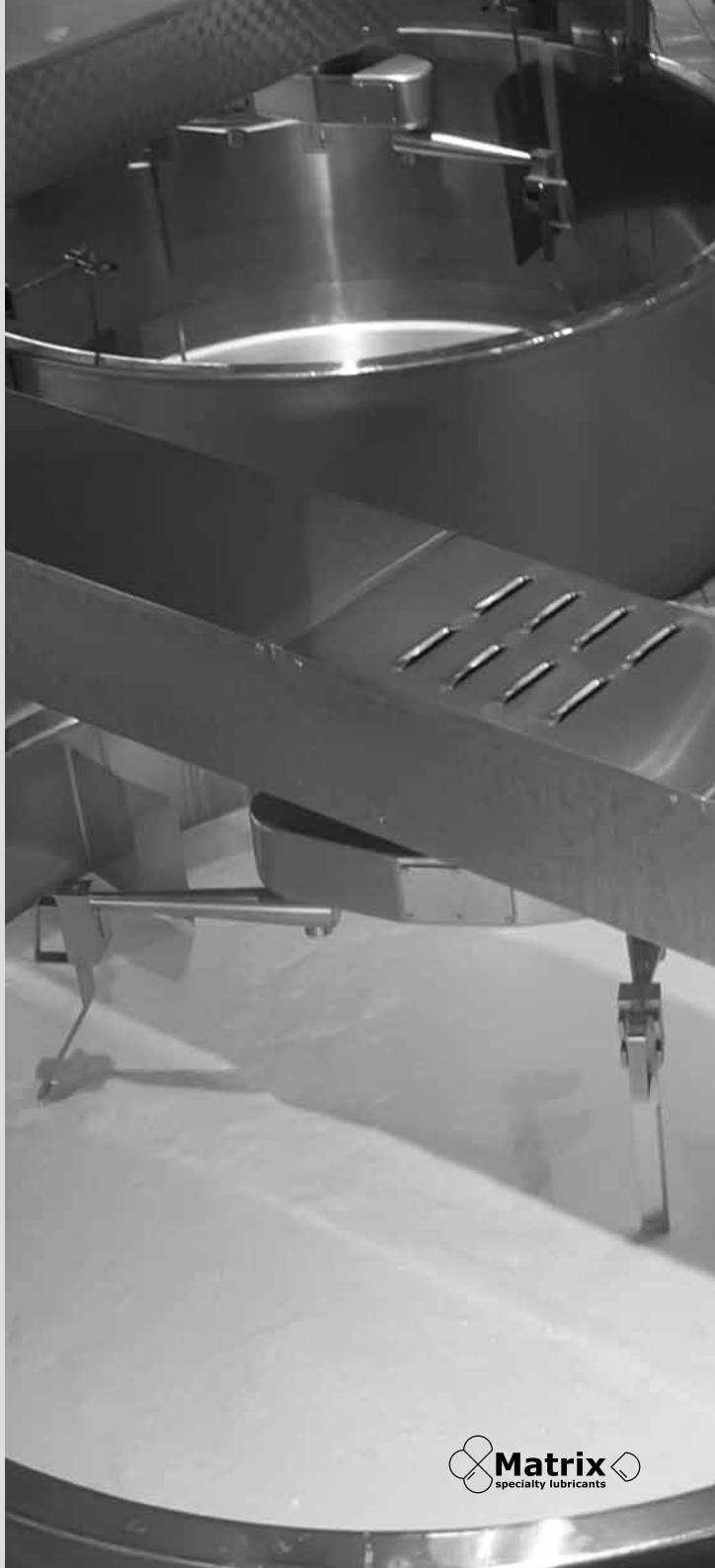
Foodmax® Spray Selection Table

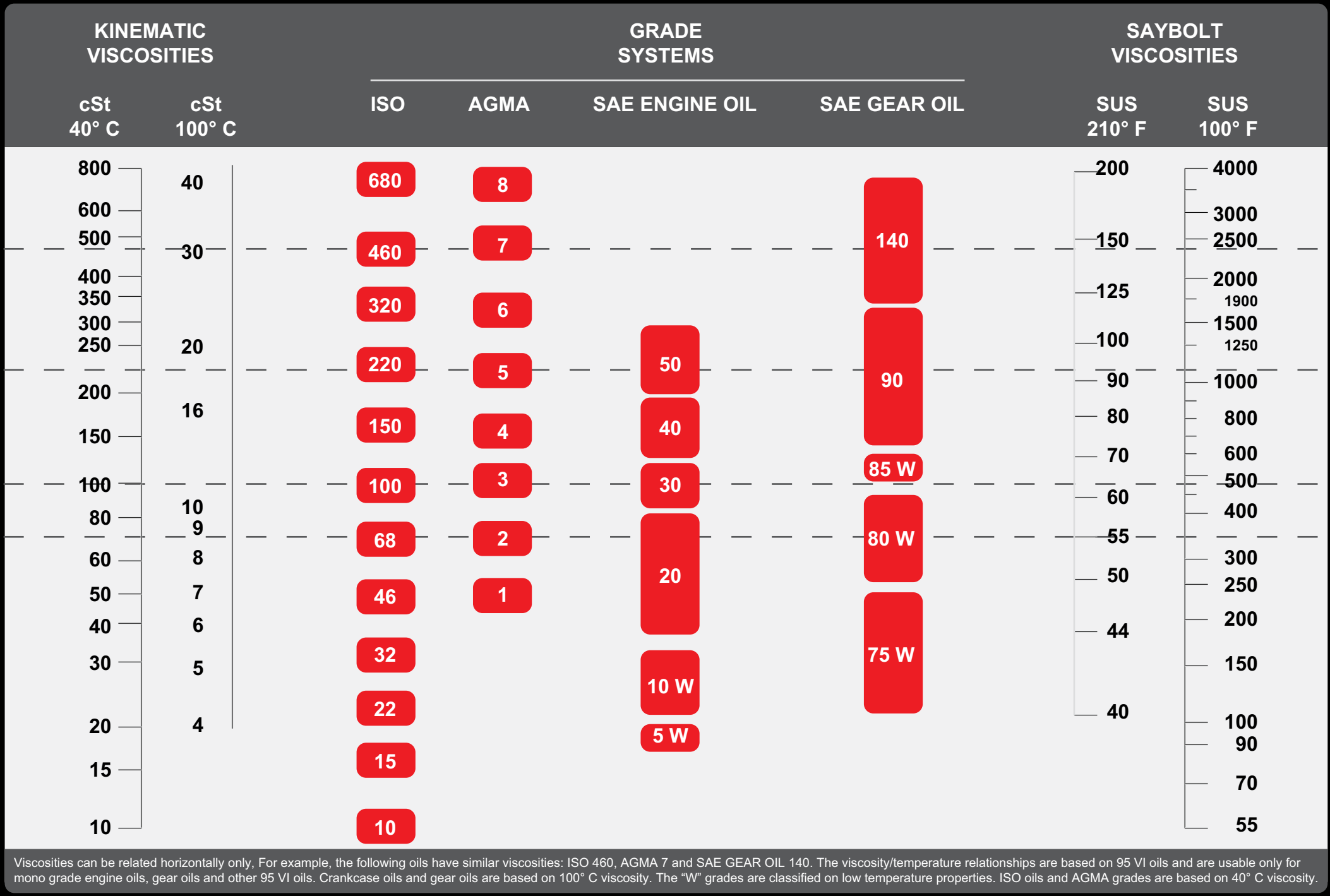
Foodmax®	Chains	Slides	Open Gear	Penetrating oil	General lubrication	Release agent	Dewatering	Anti-corrosion	NSF / InS approvals
Foodmax® Multi Spray	■	■	■		■			■	H1
Foodmax® Easy Spray	■	■			■	■		■	H1
Foodmax® Silicon Spray		■			■	■			H1
Foodmax® Grease Spray	■	■	■		■				H1
Foodmax® DDO Spray					■	■		■	H1, 3H
Foodmax® DWF Spray	■			■	■		■	■	H1

Refrigeration

The production of food goes hand in hand with the cooling and freezing of the final product and raw materials. Most food production plants are therefore having all sorts refrigeration equipment in place. Matrix Specialty Lubricants offers a large selection of high quality refrigeration lubricants including POE and PAG and special lubricants for ammonia refrigeration. Please check our Coolmax products in the refrigeration fluids brochure or check the website for more details.

Disclaimer
Information presented in this selection table is considered reliable, but conditions and methods of use, which are beyond our control, may modify results. Before adopting our products for commercial use, the user should confirm their suitability. In no case should recommendations or suggestions for the use of our products be understood to sanction violation of any patent.





Viscosities can be related horizontally only, For example, the following oils have similar viscosities: ISO 460, AGMA 7 and SAE GEAR OIL 140. The viscosity/temperature relationships are based on 95 VI oils and are usable only for mono grade engine oils, gear oils and other 95 VI oils. Crankcase oils and gear oils are based on 100° C viscosity. The “W” grades are classified on low temperature properties. ISO oils and AGMA grades are based on 40° C viscosity.

Glossary of terms

Additive
A chemical added in small quantities to a product to improve certain properties. Among the more common petroleum product additives are: oxidation inhibitors for increasing the product's resistance to oxidation and for lengthening its service life; rust and corrosion inhibitors to protect lubricated surfaces against rusting and corrosion, demulsifiers to promote oil-water, separation, VI improvers to make an oil's viscosity less sensitive to changes in temperature, pour-point depressants to lower the cold temperature fluidity of petroleum products, oiliness agents, anti-wear agents, and EP additives to prevent high friction, wear, or scoring under various conditions of boundary lubrication, detergents and dispersants to maintain cleanliness of lubricated parts, anti-foam agents to reduce foaming tendencies, and tackiness agents to increase the adhesive properties of a lubricant, improve retention, and prevent dripping or spattering.

Anhydrous
Free of water, especially water of crystallization.

Anti-Foam Agent
An additive that causes foam to dissipate more rapidly. It promotes the combination of small bubbles into large bubbles which burst more rapidly.

Anti-Oxidant
A chemical added in small quantities to a petroleum product to increase its oxidative resistance in order to prolong its storage and/or service life. The additive activates in two ways: by combining with the peroxides formed initially by oxidation paralyzing their oxidizing influence, or reacting with a catalyst to coat it with an inert film.

Anti Wear Agent
An additive that minimizes wear caused by metal-to-metal contact by reacting chemically with the metal by forming a film on the surfaces under normal operating conditions.

Acid Number
Also referred to as NEUT or NEUTRALIZATION number: the specific quantity of reagent required to 'neutralize" the acidity or alkalinity of a lube oil sample. In service , the oil will, in time, show increasing acidity as the result of oxidation and, in some cases, additive depletion. Though acidity is not, of itself, necessarily harmful, an increase in acidity any be indicative of oil deterioration, and NEUT number is widely used to evaluate the condition of an oil in service. The most common measurement is ACID NUMBER, the specific quantity of KOH (potassium hydroxide) required to counterbalance the acid characteristics. How high an acid number can be tolerated depends on the oil and the service conditions, and only broad experience with the individual situation can determine such a value.

Auto-Ignition Temperature
Minimum temperature at which a combustible fluid will burst into flame without the assistance of an extraneous ignition source. This temperature is typically several hundred degrees higher than the flash and fire point.

Base Oils
Base stocks or blends used as an inert ingredient in the manufacturing of automotive and industrial lubricants.

Base Stocks
Refined petroleum oils that can either be blended with one another or supplemented with additives to make lubricants.

Base Oil Viscosity in a Grease
Because oil does the lubricating in a grease, and viscosity is the most important property of the lubricant, the viscosity of the base oil needs to be designed correctly for the application.

Boundary Lubrication
A form of lubrication effective in the absence of a full fluid film. Made possible by the inclusion of certain additives in the lubricating oil that prevent excessive friction and scoring by forming a film whose strength is greater than that of oil alone. These additives include oiliness agents, compounded oils, anti-wear agents, and extreme pressure agents.

Carbon Residue
Coked material formed after lubricating oil has been exposed to high temperatures.

Copper Strip Corrosion
Evaluation of a product's tendency to corrode copper or copper alloys. ASTM D130. Test results are based on the matching of corrosion stains.

Corrosion Inhibitor
A lubricant additive for protecting surfaces against chemical attack from contaminants in the lubricant.

Compatibility of a Grease
This is one of the most important grease properties. Whenever two incompatible thickeners are mixed, grease usually becomes soft and runs out of the bearing. When mixing different thickener types, consult supplier on compatibility. Some incompatible thickeners are aluminum and barium soaps, clay and some polyureas.

Consistency
NLGI grade is based on amount of thickener. Consistency describes the stiffness of the grease. NLGI 2 is the most common grade.

Demulsibility
A lubricant's ability to separate from water, an important consideration in the lubricant maintenance of many circulating systems.

Detergent
An additive which chemically neutralizes acidic contaminants in the oil before they become insoluble and fall out of the oil forming sludge. Particles are kept finely divided so that they can remain dispersed throughout the lubricant.

Dropping point
The temperature at which a grease changes from semi-solid to a liquid state under test conditions. It may be considered an indication of the high temperature limitation for application purposes.

Entrainment
Describing a state of an immiscible fluid component. Minute quantities of a fluid (typically water) can be dissolved or absorbed into the oil, but excess quantities can be most harmful to equipment due to the entrainment leaving gaps in the lubricated areas.

Emulsion
A mechanical mixture of two mutually insoluble liquids (such as oil and water).

EP agent
An additive to improve the extreme pressure properties of a lubricant.

Flash Point
Lowest temperature at which the air vapor from a sample of a petroleum product or other combustible fluid will "flash" in the presence of an ignition source. The flash can be seen in the form of a small spark over the liquid.

Fire Point
Lowest temperature at which a combustible fluid will burst into flame in the presence of an extraneous ignition source. Very little additional heat is required to reach the fire point from the flash point.

Foaming
A possible reaction of an oil when mixed with air. This entrained air can result in reduced film strength and performance reduction.

Foam Inhibitor
An additive which causes foam to dissipate more rapidly. It promotes the combination of small bubbles into large bubbles which burst more easily.

Four-Ball Tests
TTwo test procedures on the same principle. The Four Ball Wear Test is used to determine the relative wear-preventing properties of lubricants operating under boundary lubrication conditions. The Four Ball Extreme Pressure Test is designed to evaluate performance under much higher unit loads.

Hydrocarbons
Compounds of hydrogen and carbon of which petroleum products are typically examples. Petroleum oils are generally grouped into two parts: Napthenics, which possess a high proportion of unsaturated cyclic molecules; and paraffinic, which possess a low proportion of unsaturated cyclic molecules.

Glossary of terms continued

Hydro Treating
A Gulf patented process used to make lubricant base stocks. In the process, lubricant feedstocks are reacted with hydrogen in the presence of a catalyst at very high temperature (400oC) and pressure (3000 plus psi). The process displaces impurities and unsaturated hydrocarbons.

Hydrodynamic Lubrication
A type of lubrication effected solely by the pumping action developed by the sliding of one surface over another in contact with an 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 prevail.

ISO
International Standard Organization

Load Carrying Ability
Under high-load conditions, high-viscosity base stock is required and usually with an EP additive or solid additive like molybdenum disulfide.

NLGI: classifying stiffness of a Grease
The best way to define the consistency or stiffness of the grease is set out by the NLGI (National Lubricating Grease Institute). A test method defines the following grades according to a level of penetration measured at a temperature of 25 °C. The consistency of the grease will change as soon as the temperature of the application will increase or decrease. When temperature falls below 25 °C, the NLGI grade rises and the grease will appear more stiff.

On the other hand, as soon as the temperature will go beyond 25 °C, the NLGI grade is reduced and the grease becomes less stiff.

Oxidation
A form of chemical deterioration to which all petroleum products are subject to, and involves the addition of oxygen atoms resulting in degradation. It is accelerated by higher temperatures above 25oC, with the rate of oxidation doubling by each 10o increase. With fuels and lubricant oils, oxidation produces sludges, varnishes, gums, and acids, all of which are undesirable.

Oxidation Inhibitor
A chemical added in small quantities to a petroleum product to increase its oxidation resistance in order to prolong its storage and/or service life. The additive activates in two ways: by combining with the peroxides formed initially by oxidation, paralyzing their oxidizing influence, or reacting with a catalyst to coat it with an inert film.

Oil Separation of a Grease
For a grease to be effective, a small amount of oil must separate from the thickener (usually less than 3%).

Pumpability of a Grease
This is an important property when pumping grease in centralized systems at low temperatures. Most common test is Lincoln Ventmeter.

Pour Point
A widely used low temperature flow indicator, depicted as -15oC above the temperature to which a normal liquid petroleum product maintains fluidity. It is a significant factor in cold weather start-up. Paraffinic oils typically have higher pour points due to the formation of wax crystals, while many other lubricants reach their low pour points through an increase in viscosity.

Rust Inhibitor
A lubricant additive for protecting ferrous (iron and steel) components from rusting caused by water contamination or other harmful materials from oil degradation.

Shear Stress
A unit of frictional force overcome in sliding one layer of fluid along another. This is typically measured in pounds per square foot, with pounds representing the frictional force, and square feet representing the area of contact between the sliding layers.

Shear Stability
Grease needs to maintain its consistency under high shear conditions. The shear stability test measures the softening of grease when sheared for 10,000 or 100,000 double strokes with a grease worker. Loss of less than one NLGI grease grade signifies a stable thickener under high shear conditions.

Sludge
The collective name for contamination in a compressor and on parts bathed by the lubricating oil. This includes decomposition products from the fuel, oil, and particulates from sources external to the compressor.

Solvency
The ability to dissolve into a solution producing a homogeneous physical mixture. The degree of solvency varies along with the rate of dissolution depending on the amount of heat added to the solution.

Synthetic lubricants
Lubricants manufacturered by a process, where a chemical conversion or transformation of one complex mixture of molecules into another complex mixture takes place.
Common types of synthetic base oil include: Polyalpha olefins (PAO), Hydrocracked/Hydroisomerized, Unconventional Base Oils (UCBO), Organic Esters, Polyglycols (PAG).

Timken OK load
Measure of the extreme pressure properties of a lubricants.

Thickener for Grease
A grease consists of a base oil, additives and a thickener. There are soap and non-soap thickeners. Each thickener type provides unique characteristics to the grease.

Vapor Pressure
The measure of a liquid's volatility. The higher the pressure at a standard test temperature, the more volatile the sample, and the more readily it will evaporate.

Varnish
A deposit resulting from oxidation and polymerization of fuels and lubricants. Similar to but softer than lacquer.

Viscosity
Measure of a fluid's resistance to flow. This is typically measured as the time required for a standard quantity of fluid at a certain temperature to flow through a standard orifice. The higher the value, the more viscous the fluid. Viscosity varies inversely with temperature so the measurements are always expressed together. Tests are typically conducted at 40oC and 100oC.

Viscosity Index
The measure of the rate of change of viscosity with temperature. Heating tends to make lubricants thinner, cooling makes them thicker. The higher a VI is on a particular fluid, the less of a change in viscosity there will be over a given temperature range. In determining the VI, two temperatures of viscosity are taken, one at 40oC and the other at 100oC.

Volatility
The property of a liquid that defines its evaporation characteristics. Of two liquids, the more volatile one will boil at a lower temperature and will evaporate faster when both liquids are at the same temperature. The volatility of petroleum products can be evaluated with tests for flash point, vapor pressure, distillation, and evaporation rate.

Water Resistance
Water washout test measures ability of a thickener to remain intact in bearing when submerged in water. Water spray-off measures ability of a thickener to remain in bearing in presence of water spray. Both of these tests measure percent grease removed.

ITC-Olie

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