



CASSIDA Food Grade Lubricants

Product Range



LUBRITECH
Special Application Lubricants

LUBRICANTS. TECHNOLOGY. PEOPLE.

FUCHS LUBRITECH – Special Application Lubricants

We focus consistently on high-quality lubricants and related specialties. We develop innovative and holistic solutions for a wide variety of applications. We value the high level of commitment of our employees and their trusting interaction with one another.



LUBRITECH

Special Application Lubricants

Facts and Figures

Company: FUCHS Lubricants Co., part of the FUCHS Group, based in Harvey, Illinois

LUBRITECH Division: the Special Application Division of the FUCHS Group

Product range: FUCHS LUBRITECH offers a full range of more than 1,000 special products, including food grade lubricants, adhesive lubricants, lubricating fluids and greases, pastes, solid film lubricants, concrete release agents, aerosols, and metal-forming lubricants

Certifications: ISO 9001: 2008, NSF ISO 21469, Halal, Kosher

FUCHS has developed, produced, and sold lubricants and related specialties for more than 80 years – for virtually all applications and sectors. With over 100,000 customers and 50 companies worldwide, the FUCHS Group is the world's leading independent lubricant supplier.

Within the FUCHS Group, **FUCHS LUBRITECH** is the expert for Special Application Lubricants. A team of more than 500 specialists around the world work to meet your needs. However demanding the application, we offer a specialized solution. Service is a crucial and fundamental component of our offering. Our experts offer on-site technical consultation to assure performance, efficiency, and process reliability.

FUCHS LUBRITECH special lubricants stand for highest performance and sustainability, safety and reliability, and efficiency and cost savings. They represent a promise: **technology that pays back.**



CASSIDA – FOOD GRADE LUBRICANTS

The CASSIDA line offers a comprehensive range of high-performance lubricants for the food and beverage industries, including fully synthetic as well as semi-synthetic and white-oil-based products. Each product's composition is always optimized to ensure maximum suitability for their respective application.

This product catalog introduces our product portfolio and gives an overview of the wide range of CASSIDA products, including CASSIDA Fluids (fully synthetic), CASSIDA Greases (fully synthetic), and FM Lubricants (white-oil-based and semi-synthetic).

The FUCHS LUBRITECH Food Division team or your local sales partner will be happy to assist you in finding the best products for your application. You will receive individual, competent advice and recommendations for products that are best suited for fulfilling your particular requirements.





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Industries Served by CASSIDA food grade lubricants



Beverage and brewing industry

The production of food, beverages, and related products puts the strictest requirements on the lubricants used in the manufacturing process. Consumer protection is absolutely essential. Incidental oil contamination during the bottling and canning process must be avoided by breweries and beverage manufacturers, who brew, mix, can, and bottle millions of gallons of beverages for global markets every year.



Meat and poultry industry

Millions of pounds of meat and poultry are processed every year. Just as in all other food industries, the safety of the production process is crucial. CASSIDA food grade lubricants support this safety. In addition, ensuring that the production process runs smoothly and is highly effective (meaning longer component lifetimes and extended maintenance intervals) is our number one priority.



Dairy industry

Customers from the dairy industry as well as the other food-related industries benefit from the excellent quality of the CASSIDA portfolio, which has been confirmed by numerous OEM approvals given by well-known manufacturers of production and manufacturing equipment. This assures that the highest demands of the industry are met.



Bakery and confectionery industry

With the high temperatures required by the bakery and confectionery industry, high heat resistance and stability of the lubricant is crucial. FUCHS LUBRITECH's research into extreme applications ensures that CASSIDA food grade lubricants perform at the highest level to allow for safe and reliable production and manufacturing processes.



Animal feed industry

Only safe feed will allow safe food to be produced. CASSIDA food grade lubricants provide this safety to the producers of animal feed. The products comply with the vast variety of feed requirements for livestock and other animals – from dairy cows and poultry to pets and fish.



Edible oil processing industry

In modern cuisine and with changing eating habits, edible oil, such as olive oil, sunflower oil, and rapeseed oil, play an integral role in our diets. With CASSIDA food grade lubricants, FUCHS LUBRITECH offers a wide choice of lubricating fluids and greases for safe and efficient lubrication of the production processes.

Serving the Highest Safety Standards of the Food and Beverage Industry

The product portfolio – at a glance

Lubricants for the production, processing, and packaging of food, beverages, medications, and cosmetic products must fulfill stringent requirements. Consumer protection is crucial, which is why FUCHS LUBRITECH practices the highest safety standards in all aspects of development, production, sales, and after-sales service.

FUCHS LUBRITECH products outperform many of the industrial non-food-grade lubricants on the market, while conforming to US FDA regulations. They are formulated with the most advanced rust and oxidation, anti-wear, and extreme-pressure additives available, all of which provide the maximum level of protection for your expensive food processing equipment.

FUCHS LUBRITECH customers benefit from the excellent quality of the CASSIDA product line, which has OEM approvals from well-known manufacturers of production and manufacturing equipment.

Safety, our number one priority

Our manufacturing plants in Kansas City, KS, and Kaiserslautern, Germany, as well as the food grade lubricants produced there, are certified in accordance with the international standard ISO 21469. This standard determines the hygienic requirements for the composition, manufacturing, and use of lubricants that may have incidental contact with food products – assuring that our products fulfill the highest possible safety standard.

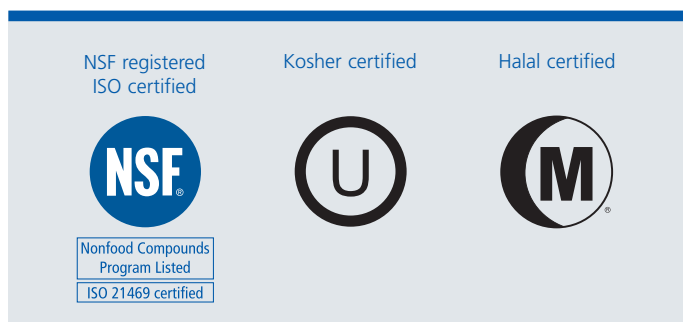
Additionally, our CASSIDA products fulfill the strict requirements of both Jewish and Muslim laws and regulations. The respective Kosher and Halal certificates guarantee the highest possible level of product and food safety.

Our most important product: Individual consulting and service

We set standards not only with our high-performance products, but also with our exceptional service! This includes providing advice on how to optimize the use of food grade lubricants taking into account stringent QA management procedures in order to avoid food contamination (in accordance with HACCP = Hazard Analysis and Critical Control Points), examination of used lubricants, development of lubrication and maintenance schedules, support in changing lubricants, active support for practical testing, careful documentation of all measures, and much more.

Finding comprehensive, sustainable, and safe solutions for all tribological issues arising from our customers' requirements and their applications is our declared goal. Customer seminars and training sessions held globally complete our service program.

With its competent technical advice and widespread sales network, our global Food Division team supports you in your production and processing activities to ensure that you will always achieve optimal results.



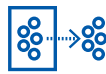
Guide to Symbols



Roller bearings



Plain bearings



Flushing



High temperature



Low temperature



Can seamers and sterilizers



Chains



Conveyors



Gears – open



Gears – enclosed



Extreme pressure



Industrial coolants



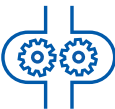
Heat transfer



Hydraulics



Valves, taps, and fittings



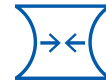
Compressors



Direct food contact



Sugar dissolving



Vacuum pumps



Maintenance spray



Slideways



Mounting/assembly/
disassembly aid



Maintenance aid



Worm gears



Linkages, pins



Anti-corrosive



NSF registered



CASSIDA FLUIDS

CASSIDA lubricating fluids based on fully synthetic base oils are developed to meet related industry specifications and to fulfill the stringent guidelines governing food-compatible lubricants. The high-performance lubricating fluids of the CASSIDA range enable the efficient operation of demanding manufacturing processes, a higher degree of utilization of machines, and a reduction in maintenance costs. They are used in various branches of the food and beverage industry.

FUCHS LUBRITECH's extensive range of food grade lubricating fluids offers the user a wide choice of CASSIDA-branded products for lifetime and total loss lubrication.

In addition to mineral-oil-based fluids, a very diverse selection of synthetic lubricating fluids are available for a wide range of applications in the food and beverage industry.

These high-performance lubricating fluids enable the efficient operation of demanding production and manufacturing processes, a higher degree of utilization of machines, and a reduction in maintenance.


FUCHS LUBRITECH researches constantly to increase performance and offer optimum lubricating fluids for maximum safety in food grade applications.

Overview

Chain oils	CASSIDA CHAIN OIL 150 1500 SPRAY	14
	CASSIDA CHAIN OIL LT	14
	CASSIDA CHAIN OIL HT 220	14
Compressor fluids	CASSIDA FLUID CR 46 100	14
	CASSIDA FLUID RF 68	15
Gear fluids	CASSIDA FLUID GL 150 220 320 460 680	15
	CASSIDA FLUID GLE 150 220	16
	CASSIDA FLUID WG 220 460 680	16
Hydraulic oils	CASSIDA FLUID HF 15 32 46 68 100	16
Maintenance fluid	CASSIDA SILICONE FLUID SPRAY	17
Vacuum pump fluid	CASSIDA FLUID VP 100	17


CHAIN OILS

CASSIDA CHAIN OIL 150 | 1500 Spray


	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	
Fully synthetic, very high-performance chain oils. Highly resistant to fling-off or wash-off. Excellent protection against wear and corrosion.	CASSIDA CHAIN OIL 150	150	19
Main application: Lubrication of drive and transport chains in the food industry. Can be applied by brush, bath, automatic lubrication systems, or spraying.	CASSIDA CHAIN OIL 1500 Spray	1500*	135*

*after evaporation of solvent

CASSIDA CHAIN OIL LT


	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	
Fully synthetic, high-performance anti-wear chain oil suitable for a wide range of temperatures, including sub-zero conditions.	CASSIDA CHAIN OIL LT	32	6.5
Main application: Transport mechanisms inside food freezers such as spiral freezers. Lubrication of metal-metal and metal-ceramic contact points in open machinery, such as slideways and chains. Plain and anti-friction bearings.			

CASSIDA CHAIN OIL HT 220

	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	
Fully synthetic, ester-based, high-temperature chain lubricant suitable for temperatures of up to 464°F (240°C).	CASSIDA CHAIN OIL HT 220	220	20
Main application: Drive and transport chains in the food industry. Also intended for use in equipment for manufacturing food packaging.			


COMPRESSOR FLUIDS

CASSIDA FLUID CR 46 | 100

	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	
Fully synthetic, very high-performance, long-life compressor oils. Meet DIN 51524 HLP and ISO 6743-3A.	CASSIDA FLUID CR 46	46	8.0
Main application: Oil-flooded rotary vane and screw air compressors in food processing plants.	CASSIDA FLUID CR 100	100	14


COMPRESSOR FLUIDS

CASSIDA FLUID RF 68


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Fully synthetic lubricants for refrigeration compressors used in the food industry.	CASSIDA FLUID RF 68	68	9.7
<p>Main application: Recommended for use in open and semi-open compressors, both screw and reciprocating types. Designed for applications with ammonia (R717), offering excellent performance under high and low evaporation temperatures. Can also be used with halogenated hydrocarbons (R22) and isobutane (R600a).</p>			

GEAR FLUIDS

CASSIDA FLUID GL 150 | 220 | 320 | 460 | 680




		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Fully synthetic, very high-performance, long-life, anti-wear gear oils. Meet DIN 51517 CLP and ISO 6743/6 specifications.	CASSIDA FLUID GL 150	150	19
	CASSIDA FLUID GL 220	220	25
	CASSIDA FLUID GL 320	320	33
	CASSIDA FLUID GL 460	460	44
	CASSIDA FLUID GL 680	680	59
<p>Main application: Suitable for gearboxes on food handling and processing equipment. Can also be used for general machine lubrication, e.g. chains.</p>			

CASSIDA FLUID GLE 150 | 220

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Fully synthetic, high-performance, anti-wear gear fluids for use in the food canning industry. Provide excellent lubrication, even when operating in locations where the product may be subject to contamination with water, juice, and food. CASSIDA FLUID GLE holds these contaminants in suspension, thus protecting metal surfaces from wear and corrosion. Approved by Angelus Sanitary Can Seaming Company for can seamer lubrication.	CASSIDA FLUID GLE 150	150	19
	CASSIDA FLUID GLE 220	220	25
<p>Main application: Lubrication of rotary can seaming machines, including both enclosed and total loss systems, and for circulating and bearing oil systems where contamination with water or food juices can occur.</p>			




GEAR FLUIDS

CASSIDA FLUID WG 220 | 460 | 680

  		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>Fully synthetic, high-performance gear lubricants for worm gearboxes. High resistance to micro-pitting. Provide exceptional thermal stability and corrosion protection. Exceptional low-friction characteristics providing efficient power transmission. Meet DIN 51717 CLP and ISO 6743/6 specifications.</p> <p>Main application: For the lubrication of worm gearboxes in food processing plants. Ideal for all worm gear applications. Suitable for use in situations where equipment is routinely cleaned before and after use and where water might enter the lubricant.</p>	CASSIDA FLUID WG 220	220	42
	CASSIDA FLUID WG 460	460	83
	CASSIDA FLUID WG 680	680	122





HYDRAULIC OILS

CASSIDA FLUID HF 15 | 32 | 46 | 68 | 100

  		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>Fully synthetic, high-performance, long-life, anti-wear hydraulic oils. Meet ISO 6743/4 HM, DIN 51524 HLP, HVLP, and DIN 51517 CLP (ISO 68 and ISO 100) specifications.</p> <p>Main application: Hydraulic systems, hydrostatic gears and control systems, plain and anti-friction bearings on food handling and processing equipment.</p>	CASSIDA FLUID HF 15	15	3.6
	CASSIDA FLUID HF 32	32	6
	CASSIDA FLUID HF 46	46	8
	CASSIDA FLUID HF 68	68	11
	CASSIDA FLUID HF 100	100	14

MAINTENANCE FLUID

CASSIDA SILICONE FLUID Spray

   		Typical Viscosity at 25°C [mm ² /s]	Typical Viscosity at 40°C [mm ² /s]
<p>Silicone-based, fully synthetic, multipurpose fluid. Thermal stability up to 484°F (250°C). Excellent adhesive properties minimize fling-off in use and wash-off by both cold and hot water. Readily displaces water. Formulated for use on metal-non-metal or non-metal-non-metal contact surfaces.</p> <p>Main application: For lubrication of conveyors; slow rotating machinery; small, slow-speed bearings and pivot points found in equipment in the food industry.</p>	CASSIDA SILICONE FLUID Spray	1000*	730*

*without propellant

VACUUM PUMP FLUID**CASSIDA FLUID VP 100**Typical Viscosity
at 40°C [mm²/s]Typical Viscosity
at 100°C [mm²/s]

Fully synthetic, high-performance vacuum pump oil.

CASSIDA FLUID VP 100

100

14

Main application: Vacuum pumps producing a medium vacuum, used in the food and beverage processing and packing industry.





CASSIDA GREASES

CASSIDA greases are fully based on synthetics and fulfill the same technical requirements as non-food grade lubricants – i.e. to reduce friction and wear or to protect against corrosion. For the food and beverage industry they support maximum food safety. With our range of CASSIDA greases we cover all of the applications where there is potential for incidental food contact – as found in various branches of the food and beverage industry.

Included in the CASSIDA range of greases are direct contact lubricants which are both NSF H1 and also 3H registered for safety. This means the lubricants are acceptable for incidental contact with food as well as for use as release agents on hard surfaces which are in direct contact with meat and poultry.

Our CASSIDA GREASE EPS range of lubricants has been developed to provide high performance and wear protection for machinery operating at high pressures and loads.

At slower speeds, high pressures, and high loads, a heavy-duty grease is required which helps protect machinery. We provide CASSIDA greases that are specifically designed for heavy-loaded and shock-loaded applications.


Other product series include highly water-resistant greases, assembly pastes, and low-temperature greases.

Overview of CASSIDA Greases

Regular load	CASSIDA GREASE RLS 00 0 1 2	20
Extreme pressure	CASSIDA GREASE EPS 00 0 1 2	20
Heavy duty	CASSIDA GREASE HDS 00 2	20
Specialties	CASSIDA GREASE GTS 2	21
	CASSIDA GREASE GTX 2	21
	CASSIDA GREASE HT SW 2	21
	CASSIDA GREASE LTS 1	21
	CASSIDA GREASE MD 2	22
	CASSIDA GREASE SGG 000	22
	CASSIDA GREASE FC 1 2	22
	CASSIDA PASTE AP	23


REGULAR LOAD

CASSIDA GREASE RLS 00 | 0 | 1 | 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, regular-load aluminum complex greases with synthetic base fluid.</p> <p>Main application: For use on bearings, bushings, and linkages on food manufacturing equipment. CASSIDA GREASE RLS 0 and 00 are particularly recommended for centralized lube systems or other similar systems where an NLGI 2 grease may be difficult to dispense.</p>	CASSIDA GREASE RLS 00	100	13	00
	CASSIDA GREASE RLS 0	150	18	0
	CASSIDA GREASE RLS 1	150	18	1
	CASSIDA GREASE RLS 2	150	18	1


EXTREME PRESSURE

CASSIDA GREASE EPS 00 | 0 | 1 | 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, extreme-pressure aluminum complex greases with synthetic base fluid.</p> <p>Main application: For use on bearings, bushings, and linkages on food manufacturing equipment, particularly where high pressure and loads, high temperatures, and water spray occur. CASSIDA GREASE EPS 00 is especially recommended for centralized lube systems and enclosed gears.</p>	CASSIDA GREASE EPS 00	220	25	00
	CASSIDA GREASE EPS 0	220	25	0
	CASSIDA GREASE EPS 1	220	25	1
	CASSIDA GREASE EPS 2	220	25	1


HEAVY DUTY

CASSIDA GREASE HDS 00 | 2


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, high-viscosity heavy-duty aluminum complex greases with synthetic base fluid.</p> <p>Main application: For use on bearings, bushings, and linkages on food manufacturing equipment, particularly where slower speeds, high pressure and loads, high temperatures, and water spray are present. CASSIDA GREASE HDS 00 is recommended for open gears and centralized lube systems.</p>	CASSIDA GREASE HDS 00	800	68	00
	CASSIDA GREASE HDS 2	800	68	2

SPECIALTIES


CASSIDA GREASE GTS 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>Specialty extreme-pressure calcium sulfonate complex greases with synthetic base fluid. Excellent extreme pressure, anti-wear, and corrosion prevention properties.</p> <p>Main application: For use on bearings of electric motors, pumps, conveyors, mixers, gear units, and medium- to high-speed bearings operating at up to 340 °F (170°C).</p>	CASSIDA GREASE GTS 2	50	8.6	2


CASSIDA GREASE GTX 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, extreme-pressure calcium sulfonate complex grease with synthetic base fluid. Excellent extreme pressure, anti-wear, and corrosion prevention properties.</p> <p>Main application: For use on bearings of electric motors, pumps, conveyors, mixers, gear units, and bearings. Heavy-loaded and shock-loaded applications with low- to medium-speed bearings operating at up to 360°F (180°C), such as machines used to process pet food and animal feed.</p>	CASSIDA GREASE GTX 2	400	40	2

CASSIDA GREASE HT SW 2


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>Inorganically thickened grease with synthetic base fluid and PTFE.</p> <p>Main application: Suitable for high-temperature applications up to 392°F (200°C) .</p>	CASSIDA GREASE HT SW 2	411	41	2

CASSIDA GREASE LTS 1


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance aluminum complex grease with low-viscosity synthetic base fluid.</p> <p>Main application: For use on bearings, bushings, and linkages on food manufacturing equipment. Particularly recommended for use in cold storage situations with temperatures down to -58°F (-50°C).</p>	CASSIDA GREASE LTS 1	20	4.5	1

SPECIALTIES


CASSIDA GREASE MD 2

	CASSIDA GREASE MD 2	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, silicone-based specialty grease specially developed for the lubrication and sealing of taps, valves, and fittings with EPDM seals. Suitable for use with other seal materials normally used in food machinery lubrication systems. Good resistance to hot water, steam, and disinfectant solutions.</p> <p>Main application: Taps, flow meters, and fittings used for the handling of water, drinks, and beer. Seals on autoclaves and sterilizers. Suitable for continuous operation at temperatures of up to 365°F (180°C) and short-term exposure to temperatures not exceeding 480°F (250°C).</p>		650	250	2–3

CASSIDA GREASE SGG 000

	CASSIDA GREASE SGG 000	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance, aluminum complex grease with synthetic base fluid.</p> <p>Main application: For use in gearboxes where fill-for-life lubrication is required. CASSIDA GREASE SGG 000 is also recommended for centralized lube systems that call for fluid grease with a heavy base oil viscosity and maximum performance.</p>		460	46	000

CASSIDA GREASE FC 1 | 2

	CASSIDA GREASE FC 1	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>Fully synthetic, high-performance, high-temperature greases for the fill-for-life lubrication of bearings and seals used in extreme temperatures and/or aggressive environments. Effective anti-corrosion prevention characteristics. Excellent elastomer compatibility. Suitable for applications where components might be exposed to reactive chemicals and gases; chemically inert or non-reactive in the event of contact with strong acids, alkalis, and halogens.</p> <p>Main application: Plain/roller-bearing elements, joints, micro-bearings, precision tools, linkages, and mechanical seals. Suitable for continuous operation at temperatures of up to 500°F (260°C) and short-term exposure to temperatures not exceeding 572°F (300°C).</p>	CASSIDA GREASE FC 2	510	47	2
	CASSIDA GREASE FC 1	510	47	1

SPECIALTIES

CASSIDA PASTE AP



Typical Viscosity
at 40°C [mm²/s]

Typical Viscosity
at 100°C [mm²/s]

NLGI-Grade

Synthetic assembly/disassembly paste for food and beverage processing equipment.

CASSIDA PASTE AP

85

12

1

Main application: Assembly and disassembly paste with an extremely large range of applications, e.g. screw paste for high-alloy steels to optimize the tightening torque, mounting, and pressing of bearings, disks, wheels, and bolts, for the lubrication of adjusting mechanisms as well as for drifting, bending, punching, pressing, and stamping. Protects from fretting corrosion. Protects from seizing – easy disassembling.





CASSIDA FM RANGE


The FM Series of the CASSIDA product portfolio are white-oil-based or semi-synthetic-based food grade lubricating fluids and greases. They are used in similar applications as the CASSIDA products. Especially in cases of total loss lubrication FM lubricants are preferred – as found for example in the animal feed and beverage industry.

Overview of FM Range

Hydraulic oils	FM HYDRAULIC OIL 32 46 68 100	26
Gear oils	FM GEAR OIL TLS 150	26
	FM SEAMER OIL 150	26
	FM GEAR OIL 150 220 460 680	26
Chain oil	FM CHAIN OIL 100	27
Specialties	FM FLUID RC 150 220	27
	FM FLUID RO 15 32 46 68 100	27
	FM COOLANT	28
	FM HEAT TRANSFER FLUID 32	28
	FM KRYSTALL	28
	FM AIR LUBE AA	29
	FM SUGAR DISSOLVING FLUID	29
Greases	FM GREASE CLEAR 1 2	29
	FM GREASE AX/EP 0 1 2	30
	FM GREASE CSC EP 1 2	30
	FM GREASE 387	31
	FM GREASE 2	31
	FM GREASE HD 2	31


HYDRAULIC OILS

FM HYDRAULIC OIL 32 | 46 | 68 | 100


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Hydraulic fluids for food and beverage processing equipment. Main application: Hydraulic systems, hydrostatic gears and control systems, plain and anti-friction bearings on food handling and processing equipment.	FM HYDRAULIC OIL 32	32	6
	FM HYDRAULIC OIL 46	46	7
	FM HYDRAULIC OIL 68	68	9
	FM HYDRAULIC OIL 100	100	11.6

GEAR OILS


FM GEAR OIL TLS 150

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Specialty anti-wear gear lubricant specifically designed for use in the food and beverage canning industry. Provides good lubrication even when operating in locations where it is subject to contamination with water, juice, and food. Holds these contaminants in suspension, thus protecting metal surfaces from wear and corrosion. Only to be used for total loss systems. Main application: Suitable for can seamer gearboxes on food handling and processing equipment. Can also be used for general machine lubrication.	FM GEAR OIL TLS 150	150	15

FM SEAMER OIL 150


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
A food-grade lubricant designed for use in seaming equipment where incidental food contact may occur. Only to be used for total loss systems. Main application: Suitable for can seamer gearboxes on food handling and processing equipment. Can also be used for general machine lubrication.	FM SEAMER OIL 150	150	15

FM GEAR OIL 150 | 220 | 460 | 680

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
Gear lubricants for food and beverage processing equipment. Main application: Suitable for gearboxes on food handling and processing equipment. Can also be used for general machine lubrication or as flushing fluid.	FM GEAR OIL 150	150	16
	FM GEAR OIL 220	220	22
	FM GEAR OIL 460	460	38
	FM GEAR OIL 680	680	52


CHAIN OIL

FM CHAIN OIL 100


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>White oil, adhesive, anti-wear chain oil. Minimizes fling-off in use and wash-off by both cold and hot water.</p> <p>Main application: Drive and transport chains in the food industry. Also intended for use in equipment manufacturing and food packaging.</p>	FM CHAIN OIL 100	100	14

SPECIALTIES

FM FLUID RC 150 | 220


		Typical Viscosity at 20°C [mm ² /s]	Typical Viscosity at 40°C [mm ² /s]
<p>Special high-performance fluids specially developed for use in rotary cooking equipment in food and beverage canning plants. Provide good lubrication even when operating in locations where they are subject to contamination with water.</p> <p>Main application: For use in the centralized systems of rotary cookers and sterilizers which lubricate the can exchange valves and other moving components.</p>	FM FLUID RC 150	150	15.5
	FM FLUID RC 220	220	20.4

FM FLUID RO 15 | 32 | 46 | 68 | 100


		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>General-purpose machine oils with high-quality rust and oxidation inhibitors for long-term service.</p> <p>Main application: Bearings, slides, chains, circulating systems.</p>	FM FLUID RO 15	15	3.3
	FM FLUID RO 32	32	6
	FM FLUID RO 46	46	7.1
	FM FLUID RO 68	68	9
	FM FLUID RO 100	100	14

SPECIALTIES


FM COOLANT

		Typical Viscosity at 20°C [mm ² /s]	Typical Viscosity at 40°C [mm ² /s]
<p>Propylene-glycol-based fluid containing anti-corrosion additives, for use in closed systems to chill, cool, or heat food or beverages in food industry applications. Designed to be used in mixtures with potable water. Suitable for operation in the range of -49°F (-45°C) to 250°F (120°C).</p> <p>Main application: Secondary cooling, or heating, in the food and beverage industry. For use in closed cooling systems, including those where there is a potential for incidental food contact. Not to be used for applications where there is direct contact between food and the coolant.</p>	FM COOLANT	47	17

FM HEAT TRANSFER FLUID 32

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>High-performance heat transfer fluid. Can handle a wide range of application temperatures and has excellent thermal and oxidative stability to minimize cracking and promote long service life.</p> <p>Main application: For closed-circuit and pressureless heat transfer systems with a bulk oil temperature range of ~14°F (-10°C) to max. ~620°F (325°C) where the surface temperature of the heating elements (oil film temperature) should not exceed ~645°F (340°C).</p>	FM HEAT TRANSFER FLUID 32	35	6

FM KRYSTALL

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
<p>Food-grade penetrating and flushing oil with rust-inhibiting and lubricating properties.</p> <p>Main application: Cleans and lubricates conveyor surfaces, processing tables, and packaging machines; flushing agent for bearings, gearboxes, and hydraulic systems; release agent for cutting blades, punches, and dies; protects parts against corrosion.</p>	FM KRYSTALL	4.5	1.6

SPECIALTIES

FM AIR LUBE AA



Special food-grade oil for air-line lubrication. Formulated with proprietary package of emulsifiers, detergents, and dispersants.

Main application: Rolling element and plain bearings. Heavy-loaded and shock-loaded applications. Joints, linkages, and slides. Lubricates pneumatic actuators and lifters, air motors, and air tools.

	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
FM AIR LUBE AA	18	3.8

FM SUGAR DISSOLVING FLUID



Emulsifiable oil-based cleaning and rust-inhibiting concentrate. Designed to be used in mixtures with potable water on machine surfaces in the food and sugar manufacturing industry.

Main application: For cleaning and flushing sugar or sugar-based deposits from food and beverage manufacturing equipment. For freeing moving parts or screws and bolts that are stuck with sugar deposits. For lubrication of lightly loaded bearings and slideways, especially where sugar deposits are likely to form.

	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]
FM SUGAR DISSOLVING FLUID	100	11

GREASES

FM GREASE CLEAR 1 | 2






High-performance, regular-load aluminum complex grease.

Main application: Rolling element and plain bearings. Joints and linkages open to the atmosphere. Automatic, centralized lubrication systems.






	Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
FM GREASE CLEAR 1	100	11	1
FM GREASE CLEAR 2	100	11	2

GREASES

FM GREASE AX/EP 0 | 1 | 2







  		Typical Viscosity	Typical Viscosity	NLGI-Grade
		at 40°C [mm ² /s]	at 100°C [mm ² /s]	
High-performance, regular-load aluminum complex grease. Main application: Rolling element and plain bearings. Joints and linkages open to the atmosphere. Automatic, centralized lubrication systems.	FM GREASE AX/EP 0	180	20	0
	FM GREASE AX/EP 1	180	20	1
	FM GREASE AX/EP 2	180	20	2

FM GREASE DC 2 | FM GREASE DC SPRAY

    		Typical Viscosity	Typical Viscosity	NLGI-Grade
		at 40°C [mm ² /s]	at 100°C [mm ² /s]	
White mineral oil grease, multipurpose, suitable for both direct and incidental food contact applications. Can handle a wide range of applications. Main application: For use as a direct food contact release agent for grills, loaf pans, cutters, boning benches, chopping blocks, and other hard surfaces to help prevent food from adhering during processing. Lubrication and protection of seals, guides, bearings, and blades operating in food, pharmaceutical, and other clean environments where direct food contact is inevitable.	FM GREASE DC 2	100	11	2
	FM GREASE DC SPRAY	100	11	00*

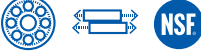
*without propellant

FM GREASE CSC EP 1 | 2


     		Typical Viscosity	Typical Viscosity	NLGI-Grade
		at 40°C [mm ² /s]	at 100°C [mm ² /s]	
High-performance, extreme-pressure calcium sulfonate complex grease. Main application: Multipurpose versatile grease. Plain and rolling element bearings. Joints, linkages, and slides. Electric motor bearings. Suitable for many grease-lubricated machinery canneries, beverage bottlers and canners, potato/corn chip processors, candy manufacturers, meat and poultry packers, frozen food processors, and other food producers and processors.	FM GREASE CSC EP 1	100	11	1
	FM GREASE CSC EP 2	100	11	2

GREASES


FM GREASE 387

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>High-performance multipurpose grease with calcium thickener. Good water resistance, resists emulsification with water.</p> <p>Main application: Plain and rolling element bearings especially in wet environments. Also for slides, cams, and open gears.</p>	FM GREASE 387	68	10	2

FM GREASE 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>Multipurpose heavy-duty aluminum complex grease. Adhesive and resists water washout.</p> <p>Main application: Rolling element and plain bearings. Heavy-loaded and shock-loaded applications. Joints, linkages, and slides.</p>	FM GREASE 2	570	46	2

FM GREASE HD 2

		Typical Viscosity at 40°C [mm ² /s]	Typical Viscosity at 100°C [mm ² /s]	NLGI-Grade
<p>Modified aluminum complex heavy-duty, extreme-pressure grease.</p> <p>Main application: For use on slow-to-medium-speed plain and rolling element bearings in heavy-loaded and shock-loaded applications. Recommended for use in machinery requiring frequent changes of the grease charge or with a high product consumption rate, such as machines used to process pet food and animal feed.</p>	FM GREASE HD 2	550	38	2

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