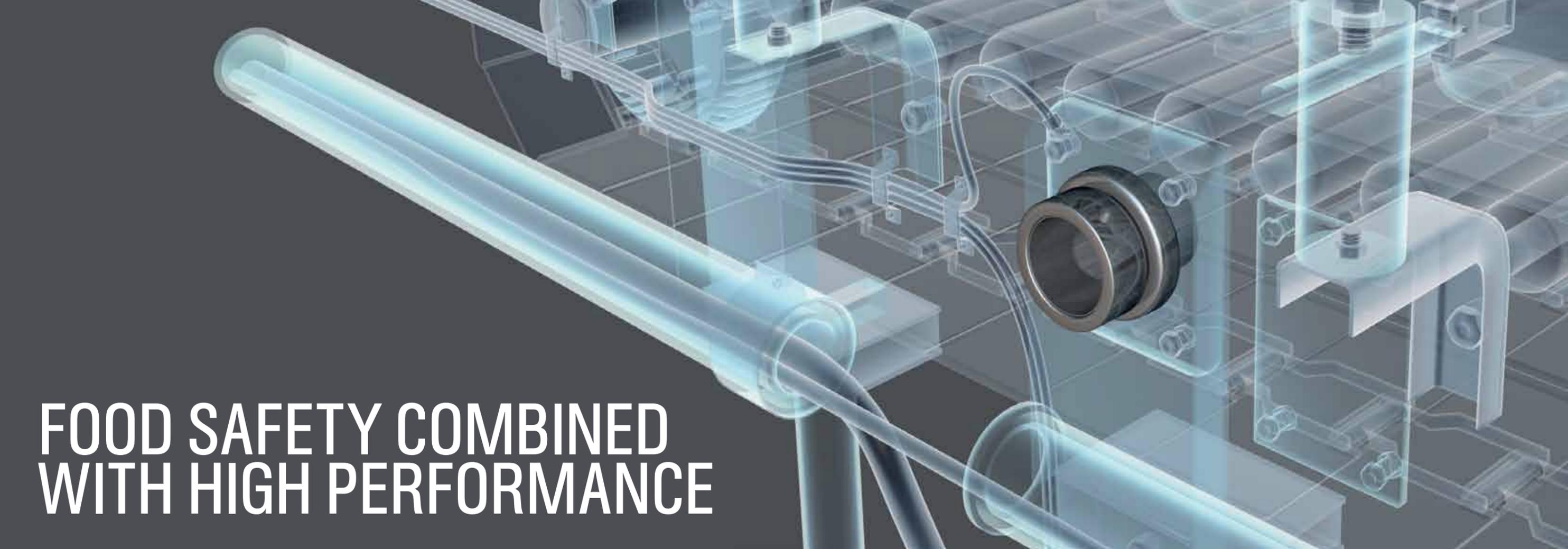


HIGH PERFORMANCE
WITH CASTROL INDUSTRIAL
FOOD GRADE PRODUCTS

THE TECHNOLOGY
INSIDE

IT'S MORE THAN JUST OIL. IT'S LIQUID ENGINEERING.

 **Castrol**
Industrial



FOOD SAFETY COMBINED WITH HIGH PERFORMANCE

FOOD SAFETY IS AN INCREASINGLY IMPORTANT PUBLIC HEALTH ISSUE. GOVERNMENTS ALL OVER THE WORLD ARE INTENSIFYING THEIR EFFORTS TO IMPROVE FOOD SAFETY.

These efforts are in response to an increasing number of food safety problems and rising consumer concerns.

It is not only critical that substances prepared or processed for use as food are safe but also that the equipment used to produce food is safe. The use of food grade lubricants means that producers can help assure customers (and legislation) that food material and foodstuffs are produced in a clean and safe environment.

Castrol Industrial has developed a food grade range specifically designed to lubricate equipment used in the food and beverage industry. This food grade range combines both the performance expected from premium lubricants with the use of food grade base oils and raw materials.

The comprehensive range can lubricate all types of equipment from hydraulics to gearboxes, bearings to compressors and high temperature to low temperatures.

H1 - APPROVAL

In December 1999, NSF launched the Registration and Listing Program (food grade lubricant approval process) for Proprietary Substances and Nonfood Compounds (replacing the previous USDA authorisation program which had been disbanded). The NSF lists food grade lubricants in their White Book – Nonfood Compounds Listing Directory.

Initially, all products previously approved by the USDA were transferred into the NSF programme. However since January 1, 2004, only those formulations that have been independently reviewed and registered by NSF will be officially listed by NSF.

The USDA Food Safety Inspection Services (FSIS) is no longer accepting products solely based on their 1998 USDA approval.

Depending on the grade, Castrol Industrial Food grade lubricants are also approved for use in Kosher and Halal food production.

**“CASTROL INDUSTRIAL
FOOD GRADE LUBRICANTS
ARE H1 FOOD GRADE
APPROVED”**



THE FOOD GRADE RANGE

PREMIUM LUBRICATION FOR YOUR EQUIPMENT

OILS



Source: Krones AG

CASTROL INDUSTRIAL FOOD GRADE LUBRICANTS

- ARE NSF-H1 FOOD GRADE APPROVED
- DO NOT CONTAIN NATURAL PRODUCTS DERIVED FROM ANIMALS OR GENETICALLY MODIFIED ORGANISMS (GMO)
- ARE SUITABLE FOR USE WHERE VEGETARIAN AND 'NUT-FREE' FOOD IS PREPARED
- ARE APPROVED AND ENDORSED BY A LARGE NUMBER OF OEMS
- CAN PROLONG EQUIPMENT LIFE AND OPTIMISE EQUIPMENT PERFORMANCE
- EXTEND MAINTENANCE INTERVALS AND BOOST PRODUCTIVITY
- LOWER MAINTENANCE COSTS AND REDUCE OVERALL CONSUMPTION AND WASTE
- AID SAFE FOOD PRODUCTION.

GEAR

Castrol Optileb GT A range of synthetic extreme pressure gear oils offering good protection against micropitting, good thermal and oxidative stability, good load carrying abilities and high corrosion resistance. Complemented by a high viscosity index, very low pour point, good demulsification and rapid air release qualities.

HYDRAULICS

Castrol Optileb HY grades have excellent anti-wear performance and can be used in hydraulic systems with all types of pumps and motors at their rated speeds and pressures. They are extremely resistant to water wash and offer excellent corrosion protection, making them suitable for use as a light lubricating oil in wet environments or in applications where equipment is frequently washed down.

CHAIN

Castrol Viscoleb chain lubricants are water-resistant and have high load carrying capacity with specific additives to protect from wear and prevent corrosion, in typical applications such as chains of production, filling and

packaging machines. **Castrol Viscoleb** chain lubricants also can be used for slideways, central lubrication systems, spraying systems (product consolidation). **Castrol Viscoleb 32** is designed especially for chains in the low-temperature range down to $-60^{\circ}\text{C}/-76^{\circ}\text{F}$.

COMPRESSORS

Castrol Optileb V fully synthetic compressor oils offering minimum residue formation, high oxidation stability and good wear protection for use in screw-type, piston, sliding vane and air compressors. They have a high viscosity index, a low temperature range, excellent water separation ability and offer extended service life in comparison with mineral oil.

Castrol Optileb AT is designed for use in hand held air tools, providing good lubrication properties whilst maintaining the food contact requirement enabling it to be used in food processing applications.

PROCESS/WHITE OILS

Castrol Optileb DAB, Whitemor WOM are highly refined medicinal white oil mineral oils which comply with all of the purity requirements of the current

editions of the British and European Pharmacopoeias for Liquid Paraffin. They can be used for lubrication and maintenance of machines in the food, beverage, pharmaceutical and cosmetics industries and as base material of cosmetic and pharmaceutical products.

Castrol Optileb TC 5 low-viscous, synthetic high-performance lubricant is designed for use for stamping tools in dusty environments, wetting of deep-drawing sheet steel and for cleaning purposes where a thin oil with good penetration is recommended.

SPRAYS

Castrol Industrial food grade sprays/aerosols are designed to allow rapid lubrication of parts and for easier accessibility.

GREASES

Castrol Obeen UF A range of greases with excellent conveying ability, good anti-corrosion properties and resistance to hot and cold water. Depending on the NLGI grade, Castrol Obeen UF can be used for many applications such as central lubrication systems, filling plants of yoghurt, instant food and cheese processing machines, grease-lubricated gears and gear motors, sealing and bearing grease, for long-term lubrication of rolling and sliding bearings, for fillers, bottle washing machines, labelling machines, closing machines and filling machines. Castrol Obeen UF 3 withstands steam cleaning and is especially suited for the beverage industry where pipes are cleaned or sterilised with steam.

Castrol Obeen FS 2 is similar to the Castrol Obeen UF range of greases, with a lower base oil viscosity which means it can be used in applications with higher speeds such as fillers, closing machines etc. Also suitable for various household appliances and machines in the pharmaceutical and cosmetic industries.

Castrol Obeen PL 2 contains wear-protection additives and solid lubricants in a synergistically effective combination. This ensures extremely high wear protection even at low peripheral speeds. It is used for lubricating: highly stressed koller bearing in pelleting presses, friction and roller bearings in screw drying conveyors and lubricating cellular wheel sluice.

Castrol Obeen TAP 2 is designed for the lubrication of fittings in the beverage industry. It ensures a smooth operation of taps in pubs and breweries and for the lubrication of racker arms and seals, as a bearing grease for the lubrication of rolling and sliding bearings in filler closing machines.

Castrol Obeen WS 2 contains wear-protection additives and solid lubricants in a synergistically effective combination. Used as bearing grease for the lubrication of rolling and sliding bearings in fillers, closing machines etc and in various household appliances and machines in the pharmaceutical and cosmetic industries.

Castrol Optisil LEB 2 silicone grease (due to its base material) is especially suited for the lubrication of EPDM materials (ethylene-propylene-diene rubber) in applications such as beverage fittings, filling devices, EPDM seals and sleeves. It is resistant to cold and hot water, withstands steam cleaning and has good resistance to detergents and disinfectants.

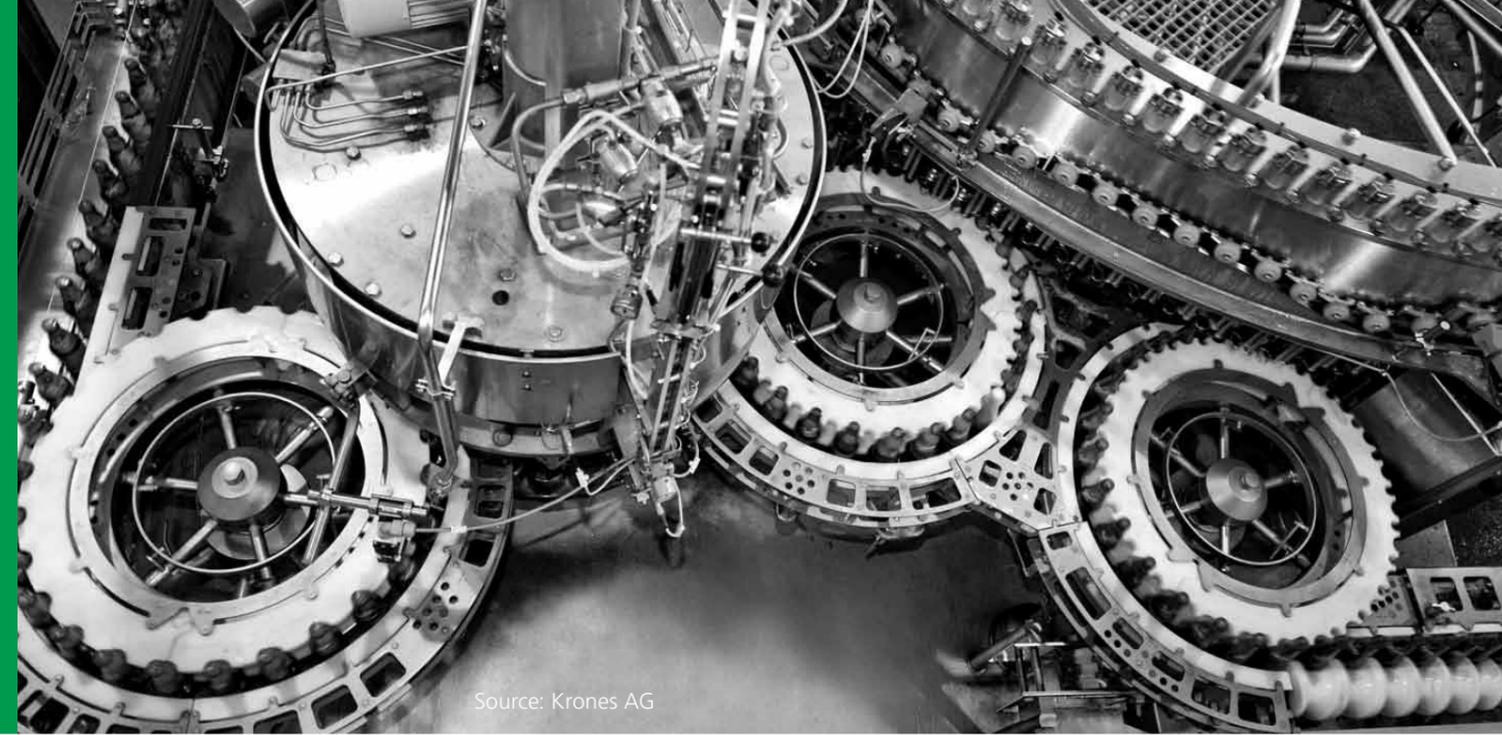
Castrol Optileb VAS is an ointment-like, white vaseline of extremely high purity which complies with the requirements of the German and European Pharmacopoeias. It is used as a preserving agent for the protection of machines, as a lubricant in food and beverage processing plants, a sealing lubricant for assembly and as a base material for the production of pharmaceutical and cosmetic products.

Castrol Molub-Alloy FoodProof 823 is developed to lubricate food machinery in high-temperature applications. Recommended for sleeve and rolling bearings in overhead conveyors and other material handling equipment. Lighter consistency 823-0 FM grease can be used in gear cases where a non-channeling slump grease is needed to control leakage. A high performance combination of food grade additives provides excellent anti-wear protection and the combination of additives and blending techniques maximise rust and oxidation characteristics for effective rust protection and long service life of the grease.

Castrol Molub-Alloy FoodProof 9830 is a high performance/high-temperature grease developed for the lubrication of rolling and sliding bearings. Castrol Molub-Alloy FoodProof 9830 provides excellent wear protection, increased service life and extended relubrication intervals. Especially suited for applications in baking and drying ovens in the food and canning industries, BAM approved as a safety sliding agent for oxygen installations. Due to its low volatility, is also suited for vacuum applications, e.g. coating installations. It can be used in continuous service up to 250°C and be exposed to temperatures up to 280°C for a short-time.

PASTES

Castrol Obeen Paste NH 1 is designed for lubrication and separation even up to +1200°C/+2192°F. At temperatures above 200°C/392°F the synthetic carrier liquid and the paste lubricant transfer to dry lubrication, with the solid lubricants providing lubrication and separation properties. Used as an assembly paste for components in high and low temperature ranges.



Source: Krones AG

TYPE / APPLICATION	PRODUCT NAME	VISCOSITY	BASE OIL	ANTIWEAR SYSTEM	TEMPERATURE APPLICATION RANGE °C
Gear Oils	Optileb GT	100 - 680	Synthetic	EP/AW	-20 to +110
Hydraulic Oils	Optileb HY	32 - 68	Synthetic	AW	-20 to +110
Chain Oils	Viscoleb	32, 150, 280, 1500	Synthetic	EP/AW	-60 to +200
Compressor	Optileb AT	15	White Oil	EP/AW	-10 to +100
	Optileb V	32-100	Synthetic	EP/AW	-30 to +100
Process Oils/ General Lubricants	Optileb DAB 8	8	White Oil		-10 to +60
	Whitemor WOM	14, 24, 68	White Oil		-10 to +60
	Optileb TC 5	5	Synthetic		-60 to +100

TYPE / APPLICATION	PRODUCT NAME	NLGI	THICKENER	BASE OIL	ANTIWEAR SYSTEM	BASE OIL VISCOSITY @ 40 °C [MM²/S]	SPEED SUITABILITY	TEMPERATURE APPLICATION RANGE °C
Grease	Obeen UF	000-3	Aluminium Complex	Synthetic	EP/AW	400	Medium	-40 to +140
	Obeen FS 2	2	Aluminium Complex	Synthetic	AW	52		-30 to +140
	Obeen PL 2	2	Aluminium Complex	Synthetic	EP/AW	460	Medium	-35 to +160 (short-time +200)
	Obeen TAP 2	2	Bentonite	Synthetic	EP/AW	450		-15 to +160
	Obeen WS 2	2	Aluminium Complex	Synthetic	EP/AW	280		-30 to +140
	Optisil LEB 2	2	PTFE	Silicone Oil		1200	Medium	-30 to +150
	Optileb VAS	4 approx	Vaseline					
	Molub-Alloy FoodProof 823-0 FM	0-2	Aluminium Complex	White Oil		190	Medium	-15 to +120 (short-time +140)
	Molub-Alloy FoodProof 9830	2	PTFE	PFPE		510	Low/ Medium	-20 to +250
	Paste	Obeen Paste NH1	2	Silica	PAG		275	

TYPE / APPLICATION	PRODUCT NAME	VISCOSITY/NLGI	PROPELLANT	DESCRIPTION
Sprays	Viscoleb Spray	32, 150, 280, 1500	Propane/Butane	Chain oil spray
	Optimol F&D Fluid Spray	8	Propane/Butane	Spray version of Optileb DAB 8
	Optileb TC 5 Spray	5	Propane/Butane	Spray version of Optileb TC 5
	Obeen UF3 Spray	3	Butane	Grease spray

Temperatures shown are minimum and maximum achieved for the range

EP = Extreme Pressure PTFE = Polytetrafluoroethylene AW = Anti-wear PFPE = Perfluoropolyether PAG = PolyGlycol

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