

Enabling Superior Food Grade Lubricants

UCON™ Polyalkylene Glycol (PAG) Lubricant Technology

What You Need to Know

- Food and beverage safety is the primary responsibility of both the producers of edible products and the manufacturers of the equipment used in food and beverage processing, storage and transportation.
- NSF registration is the generally recognized global industry standard for classifying H-1 lubricants and their HX-1 components as safe for incidental food contact.
- Many government agencies require this certification, and all lubricant formulators should strive to avoid the unnecessary risk of contaminating consumable products with unregistered gear oils, hydraulic fluids, and greases.
- Dow enables flexibility in formulating premium lubricants by offering food grade base fluids and additives that are water soluble, water insoluble, and oil soluble.



Key Terms

FDA – The **U.S. Food and Drug Administration (FDA)** permits the use of certain chemical substances in the food-processing industry.

NSF – The **National Sanitation Foundation (NSF)** is a global non-profit, non-governmental corporation that registers substances intended for use in food processing and production. Registration is voluntary and requires a review of substances and ingredients with a list of compounds known to be safe for consumption, at micro levels, resulting from incidental food contact. Incidental food contact relates to applications where it is possible for micro concentrations of a substance to come in contact with an ingestible product (pharmaceutical, food, beverage, etc.) due to leakage or other unintended means.

H-1 – The **NSF designation H-1** applies to lubricants intended for use in food production that are known to be safe for incidental food contact at micro levels.

HX-1 – The **NSF designation HX-1** applies to lubricant base stocks and additives intended for lubricants used for food production that are known to be safe for incidental food contact at micro levels.

Peace of Mind for Food and Beverage Industry Manufacturers

Behind every reliable H-1 lubricant are registered HX-1 base fluids and additives like UCON™ Polyalkylene Glycols (PAG). One of these is the UCON OSP line of high performance synthetic fluids that deliver the important attributes of a top-tier base or additive, with the added benefits of being inert, colorless and internationally approved for use in food and beverage processing.

Lubricants aren't intended to come in contact with food. Unfortunately they sometimes do, and lubricant makers want a trusted name they can stand by with assurance. Permitted for use under US FDA 21 CFR § 178.3570, Dow's performance lubricant portfolio offers products that achieve the prestigious NSF International HX-1 ranking for use in and around food processing equipment and operations.

From basic fluids and additives like UCON OSP to fully formulated lubricants, Dow enables formulators and equipment manufacturers to protect food safety and quality while offering greater efficiency and lower cost of ownership.

Current Food Grade Offering from Dow

HX-1 Lubricant Base Stocks & Additives	Applications			
	Gear & Bearing	Oven Chain	Compressor Fluid	Hydraulics
UCON™ OSP-32 Lubricant	X	X	X	X
UCON OSP-46 Lubricant	X	X	X	X
UCON OSP-68 Lubricant	X	X	X	X
UCON OSP-150 Lubricant	X	X	X	X
UCON OSP-220 Lubricant	X	X	X	X
SYNALOX™ 40-D100 Lubricant	X	X		
SYNALOX 40-D150 Lubricant	X	X		
SYNALOX 40-D220 Lubricant	X	X		
SYNALOX 40-D300 Lubricant	X	X		
SYNALOX 40-D700 Lubricant	X	X		
UCON Lubricant 50-HB-660	X	X	X	
UCON Lubricant 50-HB-2000	X	X	X	
UCON Lubricant 50-HB-3520	X	X	X	
UCON Lubricant 50-HB-5100	X	X	X	
UCON Lubricant 60-H-760	X	X	X	
UCON Lubricant 60-H-1100	X	X	X	
UCON Lubricant 60-H-1600	X	X	X	
UCON Lubricant 60-H-2300	X	X	X	
UCON Lubricant 60-H-5300	X	X	X	
UCON Lubricant 75-H-1400	X	X	X	
UCON Lubricant 75-H-9500	X	X	X	
UCON Lubricant 75-H-90,000	X	X	X	
UCON Lubricant LB-625	X	X	X	
UCON Lubricant LB-1145	X	X	X	
UCON Lubricant LB-1715	X	X	X	
H-1 Formulated Lubricants				
UCON Food Grade Lubricant 220				X
UCON Hydraulic Fluid FDC-300				X
UCON Hydraulic Fluid FDC-400				X
UCON Hydrolube FG 46				X
UCON Lubricant SL-17000	X	X	X	

Enabling Superior Performance in Multiple Applications

The food and beverage industry presents one of the most demanding challenges for lubricants that must be H-1 compliant without sacrificing performance. More lubricant makers are turning to Dow products such as UCON™ OSP to meet stringent industry requirements. OSP's multi-functional attributes enable superior performance in high temperature environments as well as outstanding service life. Another key attribute of OSP is the ability to enable excellent deposit control and boost the performance of hydrocarbon oils by solubilizing their degradation products to maintain fluid and equipment cleanliness. Inclusion of OSP into other registered NSF base oils may upgrade performance in equipment used in the food processing industry.

For H-1 gear oils, UCON OSP offers an alternative to esters in PAO formulations. Esters are often used with PAO as a seal swell additive, but are notoriously prone to hydrolysis in wet environments, causing lubricants to degrade prematurely. OSP has been found to impart better hydrolytic stability, as well as a higher degree of cleanliness and solvency power due to its very low aniline point. The UCON OSP product line ranges from biodegradable to bioresistant, in a range of grades to meet your low or high viscosity needs.

As food processing facilities look to not only improve food quality and safety but also to mitigate the risk of fire and resulting loss of lives, product, equipment and property, demand for fire-resistant hydraulic fluids continues to grow. Dow provides both fully formulated solutions, such as UCON™ Hydrolube FG 46, and base fluids, such as UCON™ Lubricant 75-H-90,000, that enable the formulation of fire resistant fluids. These can be used in food processing applications, such as fryers, ovens, cookers, and other heat applications, to reduce fire hazards and protect process safety in storage, handling, and use.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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