

# ***NSF/H1 Registered Food Machinery Lubricants: Understanding the Basics.***

*by*

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## ***Presentation Overview***

- ***What is the regulatory history of food machinery lubricants?***
- ***What are the NSF Product Category Codes for lubricants and which one(s) should my facility be using?***
- ***What is ISO 21469 certification?***
- ***What are the features & benefits of NSF/H1 registered lubricants?***
- ***What services should I expect from my lubricant supplier?***



# ***Regulation of Food Machinery Grade Lubricants***

## United States Department of Agriculture (USDA)

- Approved incidental food-contact lubricants used in meat and poultry facilities
- Relied on FDA – Title 21 Code of Federal Regulations
- USDA evaluated product formulations and reviewed labels, but seldom conducted testing
- USDA would issue a letter of authorization, which became industry-accepted

## NSF International

- 1998 - the USDA authorization program came to a halt due to a lack of resources and the development of Hazard Analysis Critical Control Point (HACCP) programs
- 1999 - NSF International took over the registration program

# ***What Is NSF International?***

- ***An independent accredited organization***
- ***Develops standards and certification programs that help protect the world's food, water, consumer products and environment***
- ***Provides auditing, education and risk management solutions for public health and the environment***



Source: <http://www.nsf.org>



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# ***NSF Nonfood Compounds Program***

- ***NSF offers product registration for nonfood compound products like lubricants.***
- ***Products that bear the NSF mark have undergone a stringent review process and are compliant with food safety regulations.***
- ***Registered products are included in the NSF White Book***



Source: <http://www.nsf.org>



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# ***NSF Nonfood Compounds Program***

***The NSF Nonfood Compounds registration program is based on the USDA standard and FDA - Title 21 Code of Federal Regulations which affect lubricants for machinery with incidental food contact***



FDA 21 CFR Codes	Description
21.CFR 178-3570	Ingredients used to manufacture H1 lubricants must comply with this code
21.CFR 178-3620	Technical White Mineral Oil as a component of non-food articles intended for use in contact with food
21.CFR 172-878	USP White Mineral Oil for direct contact with food
21.CFR 172-882	Synthetic isoparaffinic hydrocarbons (i.e.: PAO base stocks)
21.CFR 182 with 9 subheadings	Substances general recognized as safe (i.e.: zinc oxide and Vitamin (i.e.: zinc oxide and Vitamin E))

# ***NSF Nonfood Compounds Categories: Lubricant Specific***

<b>NSF Category Code</b>	<b>Registration Description</b>
<b>H1*</b>	<b>General incidental contact</b>
<b>H2*</b>	<b>General no contact</b>
<b>H3*</b>	<b>Soluble Oils</b>
<b>3H*</b>	<b>Release Agents</b>
HX-1	Ingredients for use in H1 lubricants
HX-2	Ingredients for use in H2 lubricants
HX-3	Ingredients for use in H3 lubricants
HT1	Heat transfer fluids - incidental food contact
HT2	Heat transfer fluids - no food contact
HTX-1	Ingredients for use in HT1 heat transfer fluids
HTX-2	Ingredients for use in HT2 heat transfer fluids

**\*Most commonly seen within the industry**

# *Selecting The Correct Lubricant*

## H1 LUBRICANTS

- Should be used in food processing environments where there is any possibility of incidental food contact
- May only be composed of one or more approved base stocks, additives and thickeners listed in 21 CFR 178.3570

## H2 LUBRICANTS

- Should be used where there is absolutely NO POSSIBILITY that the lubricant or lubricated surface will contact food
- H2 lubricants do not have a defined list of acceptable ingredients

## H3 LUBRICANTS

- Soluble or edible oils
- Should be used to clean and prevent rust on hooks, trolleys and similar equipment



# ***ISO 21469 Product Certification***

- ***The ISO 21469 standard is specifically for lubricants used in food, pharmaceutical, cosmetic and animal feed manufacturing.***
- ***Standard specifies the hygiene requirements for the formulation, manufacture, use and handling of lubricants, which may come into contact with products during processing***

Source: <http://www.nsf.org>



# ***H1/Food Grade Lubricants***

## ***Feature***

***100% use of H1/Food Grade Lubricants is possible and should be desirable.***

## ***Benefit***

- ***Improves consumer safety***
- ***Eliminates lubricants and lubrication as a potential chemical hazard in FDA and USDA mandated and monitored HACCP & HARPC programs.***
- ***Produces lubricant inventory consolidation.***
- ***Eliminates lubricant misapplication.***



# ***H1 / Food Grade Lubricants***

## ***Feature***

***Availability of  
100% Synthetic  
H1 / Food Grade  
Lubricants.***

## ***Benefit***

- ***>4 times the oxidation stability and cold temperature performance than the semi-synthetics which comprise most of the market.***
- ***Prolongs lubricant life and reduces disposal issues.***
- ***Excellent EP and AW characteristics. 14 Stage FZG Test pass.***



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# **100% Synthetic H1/Food Grade Lubricant Fluid Base Stocks & Grease Thickeners**

## **Fluid Base Stocks**

- **Polyalphaolefin (PAO)**
- **Polyalkylene Glycol (PAG)**
- **Polyolester (POE)**
- **Polyglycolester (PGE)**
- **Perfluoropolyether (PFPE)**

## **Grease Thickeners**

- **Calcium Sulfonate**
- **Aluminum Complex**
- **PTFE**



# ***H1 / Food Grade Lubricants***

## ***Feature***

***PFPE-based grease provides high temperature capability***

## ***Benefit***

- ***Up to 550°F / 288°C***
- ***Chemically inert***
- ***Anti-rust and anti-corrosion inhibitors***
- ***Long service life***



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# ***H1 / Food Grade Lubricants***

## ***Feature***

***Factory Mutual  
Approved, POE-based  
hydraulic fluids  
are designed  
for demanding  
food processing  
applications***

## ***Benefit***

- ***Exceptionally High Flash Point for Superior Fire Protection***
- ***Outstanding Shear Stability***
- ***A High Viscosity Index which delivers high temperature application stability***
- ***Superior Anti-Wear Performance***
- ***Readily Biodegradable according to OECD 301F***



# ***H1 / Food Grade Lubricants***

## ***Feature***

***POE-Based fluids are designed for bakery oven chains.***

## ***Benefit***

- ***Protection against wear, rust, oxidation and corrosion.***
- ***Superior film strength***
- ***Reduced risk of oven fires***



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# ***H1/Food Grade Lubricants***

## ***Feature***

***The technology behind the advanced polyalkylene glycol (PAG) base stocks in some H1/Food Grade Lubricants contribute to a **green** workplace***

## ***Benefit***

- ***Lower energy requirements***
- ***Superior thermal stability***
- ***Extended lube intervals***
- ***Less waste oil***
- ***Biodegradability***
- ***Gear Oils & Compressor Fluids***





# ***H1/Food Grade Lubricants***

## ***Feature***

***USP White Mineral Oil  
for Petroleum-based  
H1/Food Grade Oils  
and Greases.***

## ***Benefit***

- ***Purest mineral oil available.***
- ***Best at preventing metal-to-metal contact.***
- ***Most oxidation stable.***
- ***Contains Vitamin E which is a natural anti-oxidant and microbe fighter.***



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# ***H1/Food Grade Lubricants***

## ***Feature***

***Use of H1/Food Grade Lubricants containing an anti-microbial additive can eliminate lubrication as a host for bacteria, listeria and mold in the food supply chain***

## ***Benefit***

- ***Improves consumer safety***
- ***Safeguard the work environment***
- ***Makes the lubricant last longer***



# Supplier Services

- **Training - distributor and user.**
- **Interactive Plant Surveys.**
- **Follow-up Oil Analysis.**
- **Local Representation - regional distribution for on-time delivery and varied packaging.**
- **Operational Surveys.**
- **Color Coded Lube Charts, Machinery Tags and Storage Container Tags.**
- **Lubricant Inventory Consolidation.**



**Lubriplate**

**Lubricant Application Chart**

Lubriplate Product	Application
FGL-0	Palletizers
FGL-1	Seamer Gears, Line 1 and Line 2 Filler Line 4 Labeler
FMO 35 AW	Palletizers, 1225 Vacuum Pump, GF Divider
FMO 350 AW	Palletizers, Depalletizers, Recycling
FMO 500 AW	Copper, Fillers, Meads, Diverters
FMO 900 AW	Gear Reducers
SFGO ULTRA 68	Hydraulic Pump
SFGO ULTRA 220	Line 5 Filler, Labeler, Kister
SFGO ULTRA 680	Line 5 Labeler Glue Roller



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