

NSF/H1 Registered Food Machinery Lubricants: Understanding The Basics.

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Nonfood Compounds
H1 Registered
ISO 21469 Certified

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?



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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 the environment.
- Provides auditing, education and risk management solutions for public health and the environment.



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>



NSF Nonfood Compounds Program

The NSF Nonfood Compounds registration program is based on the USDA standard and FDA Title 21 Code of the 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 generally recognized as safe (i.e.: zinc oxide and Vitamin E)

NSF Nonfood Compounds Categories Lubricant Specific

NSF Category Code	Registration Description
H1*	General incidental contact
H2*	General no contact
H3*	Soluble Oils
3H*	Release Agents

*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

3H LUBRICANTS

- For Direct Contact
- Should be used on grills, ovens, loaf pans, chopping boards, etc. to prevent food from adhering during processing

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.



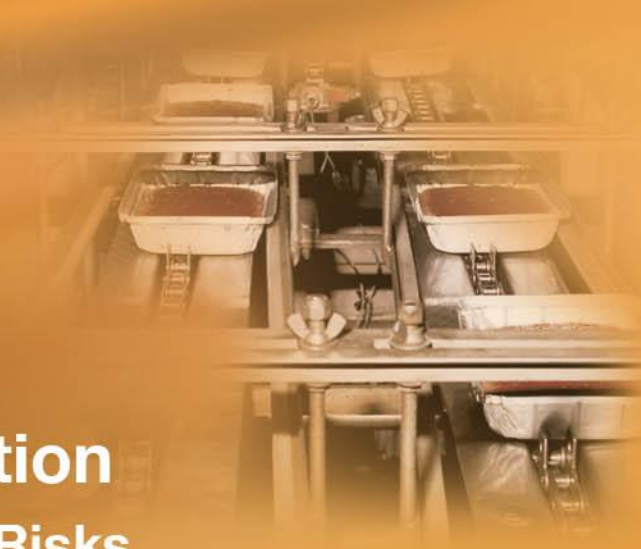
Source: <http://www.nsf.org>



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ISO 21469 Standard Facts

- ISO 21469 is a Product Certification, NOT a Management Systems Certification.
- ISO 21469 Certification is an UPGRADE from NSF/H1 Registration.
- ISO 21469 Addresses three Causes of Contamination
 - Chemical Risks
 - Manufacturing Risks
 - Storage / Handling Risks



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



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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

Many NSF H1/Food Grade Lubricants are PFAS-Free



Benefit

- Environmental Protection
- Health & Safety
- Regulatory Compliance
- Long-Term Reliability



H1 / Food Grade Lubricants

Feature

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



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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.



Recent Industry Concerns - MOAH & MOSH

Definition:

Mineral Oil Aromatic Hydrocarbons – MOAH

Definition:

Mineral Oil Saturated Hydrocarbons – MOSH

Main Concern: MOAH



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Lubriplate®

F.D.A. Approved Mineral Oils For H1/Food Grade Lubricants

21.CFR 172.878 - USP Mineral Oils

21. CFR 178.3620 - Technical White Mineral Oil

Fully Purified Mineral Oil is USP.

LUBRIPLATE Only Uses USP Mineral Oil
in Its H1/Food Grade Lubricants



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< .2% MOAH Detected in USP Mineral Oil.

Source: Kirchhoff-Institute for Physics, Heidelberg, Germany

**Fully Purified Mineral Oils/USP Have Not Been
Linked to Biological/Carcinogenic Activity.**

Source: Kirchhoff-Institute for Physics, Heidelberg, Germany



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Fact: H1/Food Grade Lubricants Manufactured with F.D.A.- approved Mineral Oils Will Always Produce MOAH and MOSH Readings.

Fact: USP Mineral Oils Will Show Much Less MOAH and MOSH.

Fact: The National Sanitation Foundation – NSF has in place its NSF 538 certification for determining MOAH-free and PFAS-free lubricants.



H1 / Food Grade Lubricants

Feature

Seek out NSF/H1 Food Grade Synthetic Oils which are produced in dedicated manufacturing systems that are **MOSH/MOAH-FREE**

Benefit

- Consumer Safety & Regulatory Compliance
- Enhanced Performance & Efficiency
- Safeguard Brand Reputation
- Environmental & Safety Standards



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.



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

Fluid Base Stocks

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

Grease Thickeners

- Calcium Sulfonate
- Aluminum Complex
- Polyurea



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H1 / Food Grade Lubricants

Feature

The technology behind advanced polyalkylene glycol (PAG) and polyglycolester (PGE) base stocks in some H1 Food Grade Lubricants contribute to a **ECO-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

Use of H/1 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.



CONTAINS

LUBRI-ARMOUR
Anti-Microbial Additive

EPA Reg. No. 86389-1



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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 OILS / FLUIDS	GRADE / DESCRIPTION	APPLICATIONS
FMO-85-AW* PART NO. L0885-000 / 5 GALLON PAIL	ISO 32 NSF H1 REG FOOD GRADE #120210 USP WHITE MINERAL OIL BASED LUBRICATING OIL	AIR LINE OIL
FMO-150-AW* PART NO. L0878-000 / 5 GALLON PAIL	ISO 32 NSF H1 REG FOOD GRADE #120811 USP WHITE MINERAL OIL BASED LUBRICATING OIL	HYDRAULIC SYSTEMS
SFGO ULTRA 46* PART NO. L0970-000 / 5 GALLON PAIL	ISO 46 NSF H1 REG FOOD GRADE #129878 SYNTHETIC PAO-BASED FLUID LUBRICANT	AIR COMPRESSORS
RCO-68FG* PART NO. L0819-000 / 5 GALLON PAIL	ISO 68 NSF H1 REG FOOD GRADE #130633 SYNTHETIC PAO-BASED REFRIGERATION COMP FLUID	REFRIGERATION COMPRESSOR
FMO-350 AW* PART NO. L0883-000 / 5 GALLON PAIL	ISO 350 NSF H1 REG FOOD GRADE #120905 USP WHITE MINERAL OIL BASED LUBRICATING OIL	CHAIN OIL
SFGO ULTRA-100* PART NO. L0863-000 / 5 GALLON PAIL	ISO 100 NSF H1 REG FOOD GRADE #126602 SYNTHETIC PAO-BASED FLUID LUBRICANT	VACUUM PUMPS
SFGO ULTRA-220* PART NO. L0860-000 / 50 GALLON DRUM	ISO 220 NSF H1 REG FOOD GRADE #125520 SYNTHETIC PAO-BASED FLUID LUBRICANT	HELICAL GEAR BOXES
SFGO ULTRA-460* PART NO. L0870-000 / 30 GALLON DRUM	ISO 460 NSF H1 REG FOOD GRADE #125541 SYNTHETIC PAO-BASED FLUID LUBRICANT	WORM GEAR BOXES
LUBRIPLATE GREASES	GRADE / DESCRIPTION	APPLICATIONS
SYNXTREME FG-2/220* PART NO. L0899-000 / CARTON/DRUM	NLGI #2 NSF H1 REG FOOD GRADE #140208 SYNTHETIC PAO-BASED, CALCIUM SULFONATE COMPLEX GREASE	GENERAL GREASE BEARINGS
CLEARPLEX 1* PART NO. L0360-000 / 35 LB PAIL	NLGI #1 NSF H1 REG FOOD GRADE #140275 USP WHITE MINERAL OIL BASED ALUMINUM COMPLEX GREASE	CENTRALIZED GREASE SYSTEMS

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Lubriplate[®] Lubricants

Celebrating 156 Years of Continuous Operations

Established 1870

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See the NSF White Book™ for a complete list of registered / ISO 21469 certified products.