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?

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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

Source: http://www.machinerylubrication.com

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

NSF Category Code	Registration Description
H1*	**General incidental contact**
H2*	**General no contact**
H3*	**Soluble Oils**
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

Source: http://www.machinerylubrication.com

Selecting The Correct Lubricant

- The USDA & FDA have implemented the Hazard Analysis & Critical Control Point (HACCP) program & the Hazard Analysis & Risk-Based Preventative Controls (HARPC) through FSMA.
- These programs dictate that each lubrication point has to be evaluated for where contamination might occur, which can be done through a lubrication survey.
- If a 100% H1 lubrication program is implemented, lubrication is eliminated as a potential hazard within these plans.

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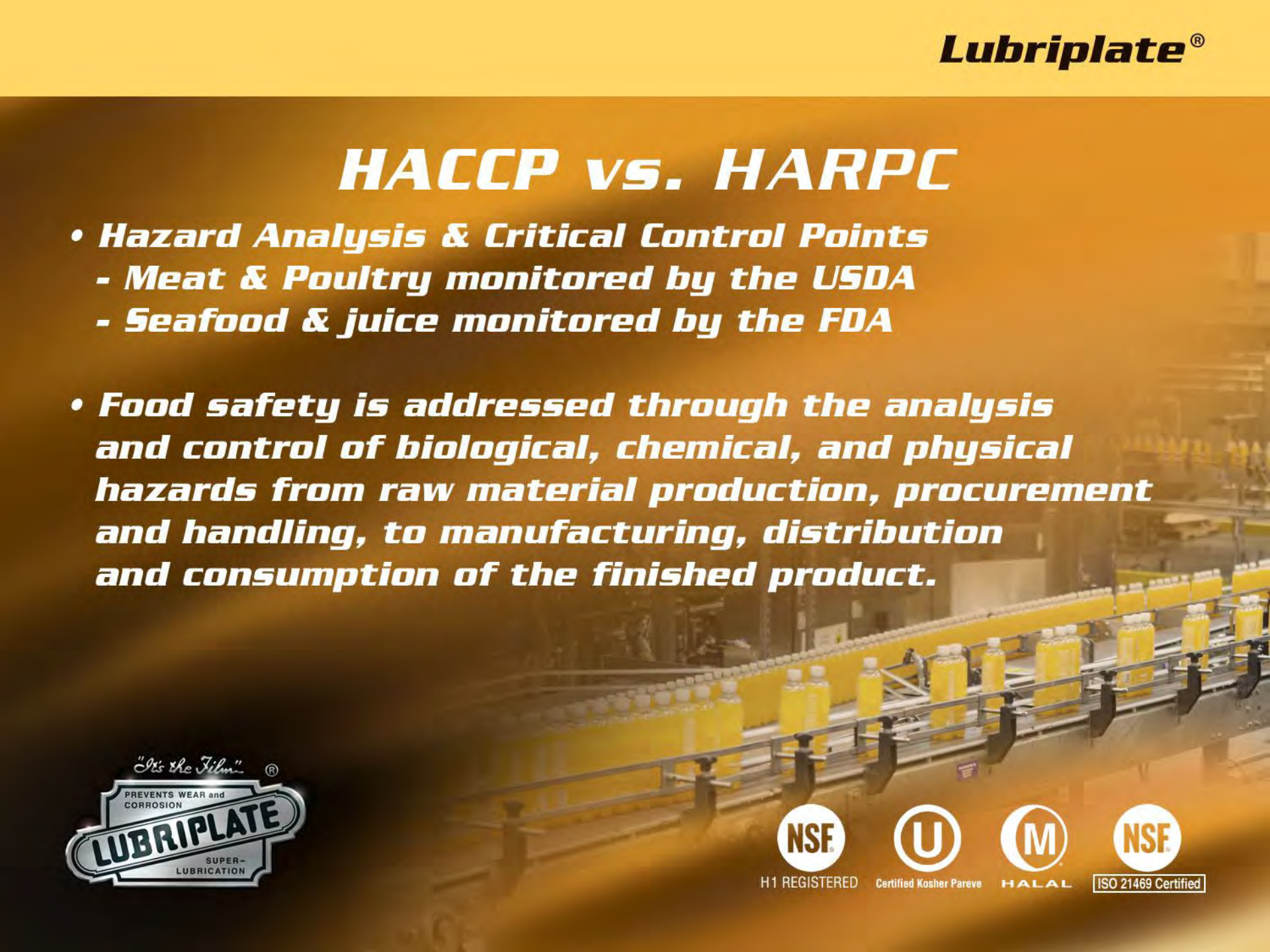
HACCP vs. HARPC

- **Hazard Analysis & Critical Control Points**
  - **Meat & Poultry monitored by the USDA**
  - **Seafood & juice monitored by the FDA**

- **Food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.**



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HACCP vs. HARPC

- Hazard Analysis & Risk-Based Preventative Controls.
- Applies to all food facilities subject to FDA registration.
- Exemptions include:
  - Facilities under USDA jurisdiction (ie: meat & poultry).
  - Facilities that are subject to the Standards of Produce Safety.
  - Facilities that are already governed by HACCP (ie: seafood & juice).
  - Facilities regulated by the Good Manufacturing Practices for Dietary Supplements.
  - Facilities deemed "small" or "very small" businesses.

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HACCP vs. HARPC

- Covered facilities must establish and implement a food safety system that includes an analysis of hazards and risk-based preventive controls.

- The rule sets requirements for a written food safety plan that includes:
  - Hazard analysis
  - Preventative controls
  - Oversight & management of preventative controls

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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

NSF ISO 21469 Certification For Lubricants

- ANSI Accredited program provides an independent third-party assessment of a product's conformity to the hygiene requirements established by the ISO 21469 standard

- Certified lubricants can bear the NSF ISO 21469 Certification Mark on packaging and labels

Source: http://www.nsf.org

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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)

Grease Thickeners

- Calcium Sulfonate
- Aluminum Complex
- PTFE

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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.

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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**

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Anti-Microbial Additive
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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

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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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

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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.

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