

Understanding FOOD-PROCESSING LUBRICANT USE

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Lubricants are vital to a piece of industrial equipment's overall lifespan, reducing the amount of heat produced by friction and abrasion. Equipment longevity is essential for production growth and as food processing has transformed into a high-volume industry, facility managers and processors need equipment and machinery to function at its most efficient level. Because there are different types of lubricants that a facility may use, it's key for plant and production managers to have an understanding of lubricant uses and the benefits of their implementation for product longevity and food safety. This becomes especially important for lubricants that may incidentally come in contact with food processing areas (nonfood compounds) to protect the product and supply chain from potential contamination.

Choosing the Right Lubricant

It is imperative that food processing facilities understand the differences between lubricants and the types of equipment they may be used with. In knowing the different types of lubricants used in a facility, managers can then monitor the location and application of the lubricants as part of their food safety strategy. H1 registration, as defined in the U.S. Code

of Federal Regulations (CFR), is the only category acceptable for incidental food product contact and can be considered as a food-grade lubricant. Other categories, such as H2 or H3 registration, are not appropriate in such instances.

- H1: Products used on all types of food processing equipment. For example, as a protective anti-rust film or as release agents on gaskets or seals of tank closures, and even as lubricants for machine parts and equipment.
- H2: Products used on equipment and machine parts in locations where there is no possibility of the lubricant or lubricated part contacting edible products.
- H3: Products used to prevent rust on hooks, trolleys and similar equipment. Treated equipment that contacts edible products must be cleaned by washing or wiping before being put back into service.

A Growth in Registered Lubricants

In 1999, public health organization NSF International launched the Registration and Listing Program for Proprietary Substances and Nonfood Compounds, formally the U.S. Department of Agriculture (USDA)'s authori-

zation program. Today, NSF International is the only globally recognized independent, third-party organization that registers nonfood compounds used in food and beverage processing. Working with the USDA, NSF captured all prior review guidelines and packaged them into a single document, which serves as the foundation against which products are evaluated and registered. This is a voluntary registration and listing program that has established evaluation criteria for proprietary substances and nonfood compounds used in food processing and food handling facilities inspected by the USDA. Mirroring the prior USDA program, manufacturers of nonfood compounds can register their products after rigorous review and successful demonstration of formulation, label and use instruction evaluations, which include requirements defined by the U.S. Food and Drug Administration (FDA) in 21 Code of Federal Regulations (CFR).

When lubricant manufacturers begin the evaluation process, the formulation is essential in order to complete the review against FDA requirements in 21 CFR. A label review also confirms what is stated is correct, there are no unsuitable claims and the use instructions are appropriate for the requested end use. After successful evaluation and registration, products can bear the NSF registration mark, which includes the product category and is traceable back to the NSF International website.

Consistent trends in the growth of NSF's nonfood compounds registra-

Lubricants

H1	General – incidental food contact
H2	General – nonfood 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

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tion program demonstrate the importance of using the correct lubricants in the food processing industry. Over the past 10 years, product registrations for nonfood compounds used in facilities have increased steadily, as food safety and risk mitigation have become increasingly vigorous in the food industry. The number of incidental food contact products manufactured and sold continues to grow at an increased rate throughout the global marketplace. Between 2008 and 2018, NSF International has seen an increase of almost 4,400 additional registered H1 products, totaling more than 10,081 H1 registered products. Outside of the United States, Europe is the largest market for registered lubricants, with more than 2,828 products in France, the United Kingdom (U.K.) and Germany. This growth in H1 registered products gives facilities a wider range of products to choose from, all with the added food safety benefits that come with registered products.

ISO 21469 Certification

H1 is the leading lubricant category and because of its standing in the industry, the voluntary standard ISO 21469, Safety of machinery — Lubricants with incidental product contact — Hygiene requirements was published in 2006 by the International Organization for Standardization to require hygienic standards for the formulation of the lubricants used in specialized industries such as food, pharmaceutical, cosmetics and animal feed manufacturing.

The growing trend of mitigating and reducing risk in food safety is resulting in a demand for ISO 21469 certification for incidental contact lubricant manufacturers. With the ever-increasing need to limit the introduction of chemical and physi-

cal contaminants in the meat and poultry processing environments, manufacturers are looking for lubricants that support quality programs and comply with Hazard Analysis Critical Control Point (HACCP) requirements and other food safety strategies. Lubricant manufacturers want to demonstrate the safety of their products to processors and facility managers, and in order to do so they are willing to evaluate the manufacturing process and storage requirements for the lubricants they are selling. This results in lubricant manufacturers implementing an internationally recognized certification — ISO 21469.

Certification to ISO 21469 is an added value for lubricants and also allows processors to know the product meets hygiene requirements for its formulation, manufacture, use and handling throughout its entire life cycle. ISO 21469 certified lubricants can help processors reduce the risk of contamination in their facilities and supply chain in part because of the strict outline in the standard. Like product registration, ISO 21469 ensures lubricant ingredients are safer in the event of incidental food contact. The certification process also reviews the level of quality control applied to the formulation, manufacturing, distribution and storage of the lubricant to ensure it complies with the highest standards of hygiene.

A Tool in Risk Management

When processors use registered lubricants or nonfood compounds that are certified to ISO 21469, they reduce the risk of cross-contamination by potentially harmful chemicals. This provides useful insight for processors to address critical control points. HACCP

plays an important role in protecting processors, their product and supply chain. Under HACCP, all meat and poultry establishments must identify and manage critical control points for food processing to assure food safety. In these guidelines, strict hygiene procedures and risk evaluations are implemented to help inhibit scenarios of product recall and to help ensure food safety throughout the facility and supply chain. For lubricants that may come into contact with food, it's especially important for facility operators to select the appropriate lubricant product to not only meet their operational needs, but also their HACCP requirements.

In addition to choosing the correct lubricant type for the equipment and the product it may come in contact with, proper application of lubricants is also a serious factor in shielding the food supply from contamination. Proper application warrants that equipment functions safely and efficiently in a regularly challenging atmosphere, all while meeting food safety guidelines and regulations.

As food processing facilities establish and implement their HACCP plans and food safety initiatives, processors and facility managers should look for:

- Lubricants that are suitable for the facility's equipment and machinery and, in addition, the different types of products they come into contact with
- Products that are registered by an independent, third-party organization and certified to ISO 21469 **NP**



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