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**How to Make  
Your Food or Beverage  
Facility Successful**

# How to Make Your Food or Beverage Facility Successful

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**F**ood-grade, food-plant, NSF certified, FDA listed, USDA registered – the list of lubricant terms is endless. Sifting through the terminology, standards and best practices for properly lubricating machines can be overwhelming for facility managers. However, correctly lubricating equipment is essential to any operation's success. Choosing and implementing the right lubrication program will ensure that a plant operates safely and efficiently, in addition to making it more profitable.

## The Low-down on Lubricants for Food and Beverage

The first thing maintenance managers need to understand when evaluating industrial versus food-grade or food-plant lubricants is how they are similar and how they are different. Products designed for use in food and beverage facilities must do all the things that a conventional industrial lubricant does (such as meet general technical requirements that include the ability to reduce friction and wear, protect against corrosion, dissipate heat and have a sealing effect). In addition, they must comply with food regulations and be physiologically inert, tasteless, odorless and approved by various international standards.

Products for this industry are often referred to as food-grade, but it is important to note that only H1 lubricants are truly “food-grade.” Lubricants for the food and beverage industry are reviewed by NSF International (NSF), an independent registration body, and are registered as either H1 or H2.

H1 lubricants are suitable for incidental, technically unavoidable contact with a food product. These lubricants may be safely used for handling, canning, bottling, blending, chilling, cooking, cutting, slicing and peeling, on machinery components such as pumps, mixers, gearboxes, chain drives

and conveyor belts. H1 lubricants may be used above the food line.

NSF H2 lubricants, on the other hand, are suitable for use in the food-processing, beverage and pharmaceutical industries, provided that contact with the food product is absolutely impossible. These products are sometimes referred to as food-plant or food-machinery lubricants and may be used below the food line. The distinction between these two designations is especially critical when dealing with issues of contamination and potential product recall.

It is a common misconception that one must sacrifice performance in order to meet H1 standards. This may have been true in the past, but today that is simply not the case. Advances in the industry now allow H1 lubricants to deliver the same or better performance than conventional industrial oils. For example, the Klübersynth® UH1 6 Series is an H1 lubricant that performs well in the areas of efficiency, operational reliability and extended life. In some cases, gearbox manufacturers actually use this product for their first-fill



**Figure 1. Bottling is One Application for H1 Lubricants**



**Figure 2. Conveyor Belt Operating with H1 Lubricant**



**Figure 3. Bottling Application**

even when the box is not intended for use in a food or beverage facility.

## Requirements

Are all food and beverage companies required to use H1 or H2 lubricants? Surprisingly, the answer is no. Only certain facilities are regulated by governmental agencies to use these products. However, the use of H1 or H2 products has become an unofficial industry standard and many organizations have made it their corporate policy to use H1 and H2 lubricants as a safety precaution. By going a step further and using only H1 products across the board, companies can further minimize their risk. In the event that a lubricant is misapplied in the plant, components may fail, but this is certainly more palatable than facing product contamination and/or recall. Please remember, even H1 lubricants have a safety threshold they cannot exceed: 10 ppm (parts per million) is the upper limit to be considered harmless if consumed.\*

## Lubricant Regulations

The food industry consists of several regulatory bodies. Prior to 1998, the USDA registered non-food compounds in accordance with regulations in the food and beverage industry. The USDA defined non-food compound as “any agent proposed for use in a federally inspected plant, but not expected to become a component of a meat, poultry, rabbit or egg product.” Before a product could be registered as a food-grade lubricant, the lubricant manufacturer had to prove that all ingredients used in its formulation were on the United States Food and Drug Administration (FDA) list of allowable substances, in accordance with the Guidelines of Security CFR 212, section 178.3570. Lubricants were registered in two categories, H1 or H2, based on the specified raw material lists.

When the USDA stopped registering lubricants in 1998, there was a period of self-regulation; lubricant manufacturers provided certificates verifying that their products were still in keeping with the FDA mandates. In 2001, NSF International stepped in and adopted the USDA procedures to register and list new H1 and H2 lubricants. Products that comply with these guidelines are listed in the NSF White Book™ Listing for proprietary substances and nonfood compounds.

A new standard, which is being heavily debated, is ISO 21649, the next step in lubricant manufacturer regulations. Lubricants used in the food, food processing, cosmetic, pharmaceutical, and animal feed industries are included within the scope of this ISO standard. Until now, a lubricant’s recipe and its intended use were the only items that were reviewed and regulated. However, ISO 21649 - Safety of machinery -

Lubricants with incidental product contact - Hygiene requirements Certification Program, is much more comprehensive. It specifies the hygiene requirements for the formulation, manufacture, use and handling of lubricants, which may come into contact with products during manufacturing or processing. The product certification process will involve formulation and label review, auditing, risk assessment, and optional product testing by NSF. Although ISO 21649 is still being debated within the industry, NSF has announced that it will certify to the standard.

## Standards of Success

In a dynamic industry such as food and beverage, it is important that facility managers stay on the leading edge of regulatory changes, product developments and more. To help clear up confusion and deliver new information, some lubricant manufacturers have developed training seminars for OEMs and end users. Klüber Lubrication educates its customers on an individual basis through Klüber Lubrication Asset Support Service (KLASS). This integrated program provides lubricants, service and support that can help deliver measurable energy savings, increase plant efficiencies, reduce operating costs and support existing continuous improvement initiatives.

Beyond training, however, your lubricant supplier should be able to provide cost benefit analysis, documentation of H1 or H2 registration, and additional services that help you keep your facility running as efficiently as possible. An internal auditing system that measures your current lubricant consumption, relubrication intervals and the associated costs of your lubricant program is the first step in creating a lubrication system that will work for your facility. Take advantage of the technical and operational expertise available from your lubrication specialist.


## Increase Profit

Although lubrication is an integral part of a facility's success, many facility managers don't bother to invest a lot of time or money in their lubrication program, because it's usually accounts for only one percent of a facility's operating budget. However, the real cost benefit of a lubricant, which facility managers don't see in the lubricant budget, shows up in other areas. A good lubrication program impacts the three biggest pieces of the budget pie: energy consumption, components (spare parts inventory) and labor. If a facility manager is using the right lubricant, which extends relube intervals, he or she saves on maintenance personnel's time, because they don't have to lubricate the machines as often. Facility managers also save money when it comes to spare inventory, because components last longer. This capital can then also be used for other projects. Energy efficiency is important to everyone. When using a high-quality, specialty lubricant, facility managers not only drive up efficiency, they also see a decrease in the amount of energy needed to operate the overall facility.

By learning more about food-grade lubricants and the lubrication industry's regulatory bodies and standards, facility managers will have a better idea about what lubricant to select, the safety practices that should be put into place and the best lubricant practices to follow, in order to save money and energy. Moreover, adopting an "all-H1" lubrication program throughout the plant will help limit the risk of contamination problems, while delivering the same or better performance than conventional industrial oils. **ML**

## About the Company

Klüber Lubrication is a manufacturer of specialty lubricants. For more information about food-grade lubricants and best practices, visit [www.kluberfood.com](http://www.kluberfood.com).



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*\*Please note that lubricants containing silicone oils have a 1 ppm threshold.*