

Converting to all food-grade lubricants reduces contamination risk

- **Using all NSF H1 registered lubricants in a facility can eliminate sources of potential contamination with hazardous substances while maintaining the same or even achieving better equipment performance.**
- **The newest lubricants designed for use in food and beverage facilities are capable of performing in the same way as a conventional industrial lubricant.**

Look inside the lubricant cabinet of a food, beverage or pharmaceutical plant and it's surprising what you find. Upon close inspection, you'll see the cabinet isn't holding only food-grade (NSF H1) lubricants. The cabinet may also contain cleaners, glue removers and penetrating sprays, which often turn out to be just industrial chemicals and/or degreasers.

Lubricants suitable for food and beverage applications are registered as H1 by NSF International (NSF), an independent registration body. They comply with food regulations because they are physiologically inert, tasteless and odorless. They are suitable for incidental, technically unavoidable contact with a food product up to 10ppm.

H1 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.

Lube cabinet clutter leads to consequences

When non-food-grade lubricants clutter up a storage cabinet, there's always the chance that someone reaches for the wrong lubricant at the wrong time.

For example, a cabinet may contain multiple common grease guns that aren't see-through; these types don't allow visibility to the label for the actual grease inside. This can result in a problem if, for example, a maintenance person goes on vacation and an unfamiliar or new employee is filling in. In this scenario, it's very possible that the wrong grease gun will be used and, with a mix of food-grade and non-food-grade lubricants in a plant, an incorrect



Use food-grade lubricants above and below the line for assured safety.

and potentially non-food-grade lubricant will make its way into the grease fitting.

Given the potential for end-product contamination, this situation creates the risk that industrial-lubricant thickeners—like lithium or barium—could become an ingredient in the food. On the other hand, if all food grade is the factory standard, this risk is mitigated because up to ten parts per million are within FDA tolerances with NSF H1 lubricants.

Above the line versus below the line

There used to be the idea that industrial (NSF H2) lubricants could be used depending on whether the application was “above

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the line or below the line.” That meant, for example, that for components *above* a conveyor line holding bread, you should use food-grade lubricants. That way if a hydraulic line were to burst or a gearbox were to leak above the bread, there would be a lower risk if a trace amount were to fall on the bread below.

For components *below* the conveyor line, however, the thinking was that there is nothing in a gearbox underneath the line that would reach the food above it, so using a non-food-grade lubricant was acceptable.

That thinking has since been challenged with studies and experiences showing how contamination can actually occur in food plants. One extreme example of this was reported where listeria contamination could have actually been traced back to rubber floor mats which are certainly below the line. There is also always the risk of mistake as well, where industrial oil designed for the gearbox on the floor is mistakenly filled into the gearbox overhead.

In addition to the risk of contaminating food by applying the wrong lubricant, using different types of greases and oils in the same application can actually ruin a bearing or gearbox. Another benefit of reaching an all food-grade standard is the likely rationalization in numbers of greases and oils used in a plant.

Creating an all food-grade lube cabinet

There are several reasons why a cabinet may not contain all food-grade products. A facility may have been ordering certain products for a number of years, or they’re just simply unaware of the inventory being stocked. Similarly, there may be a lack of awareness that even cleaners can have an NSF registration.

The only way to completely avoid the contamination risk of H1 and non-H1 lubricants is to eliminate all non-food-grade lubricants in the cabinet and in the plant. But there’s a misconception that a food-grade lubricant compromises performance. After all, they cannot contain certain substances and additives that provide excellent lubrication.

So the logical question is, “What’s going to happen to that chain with a food-grade lubricant? Will I have to replace it once a year as opposed to three years?” That suspicion feeds the thinking that you can’t cover every application with a food-grade lubricant.

The good news for maintenance managers is that the newest lubricants designed for use in food and beverage facilities are capable of doing all the things that a conventional industrial lubricant does. Even at higher temperatures or loads and in wash-down environments, the appropriate NSF H1 lubricant will still reduce friction and wear, protect against corrosion, dissipate heat and have a sealing effect.

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Get food-grade lubricants that don't compromise performance.

Technical advances in the industry now even allow H1 lubricants to deliver the same or better performance than conventional industrial gear oils. For example, Klübersynth® UH1 6 Series is a noteworthy H1 lubricant that offers superior performance in

terms of efficiency, operational reliability and extended life. Some gearbox manufacturers actually use this H1 product for their first-fill even when the box is not necessarily intended for use in a food or beverage facility. With H1 options like this that meet food safety concerns and achieve high levels of performance, it's easy to put all food-grade products in the lube cabinet.

It's true that not all food and beverage companies are required to use H1 lubricants. However, by using only H1 products, a facility minimizes risk. Even if a lubricant is misapplied, it may not expose the plant to the possibility of a product recall. That's why leading food-industry bodies—such as the Global Food Safety Initiative (GFSI)—are looking at every area of the “Farm to Fork” supply chain. Similarly, the Food Safety Modernization Act (FSMA) is now scrutinizing every food ingredient coming into the United States.

This is also true for the many food, beverage and pharmaceutical facilities that are pushing toward ISO 22000 standards. ISO 22000 includes the implementation of a plan based on a Hazard Analysis and Critical Control Points (HACCP) procedure that identifies risks that can impact the safety of the finished product.

Bottom line: safety pays

By performing a careful inventory and converting to all NSF H1-registered lubricants in a facility, maintenance managers will

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put in place a best practice for risk mitigation—eliminating a source of potential contamination with hazardous substances while maintaining the same or even achieving better equipment performance. It's a win-win formula that not only saves money when it comes to contamination cleanup, but it also pays dividends by driving food safety and quality forward in the plant environment for years to come.

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.