

Lubricant technologies offer smooth operations

Lubricants aid safety and eco-initiatives in beverage plants

FOR THE SAFETY OF CONSUMERS, MANY BEVERAGE MANUFACTURERS HAVE converted to food-grade lubricants. Food-grade lubricants normally are mineral oils or are manufactured from vegetable oils. The U.S. Food and Drug Administration (FDA) requires the use of food-grade lubricants as part of the Hazard Analysis and Critical Control Point (HACCP) program.

Food-grade lubricants are allowed incidental contact with products below the FDA-mandated level of 10 parts per million. The FDA has a zero tolerance for contamination by nonfood-grade lubrications.

NSF International registers food-grade lubricants as H1 food-grade, and publishes a list of H1 certified nonfood compounds. NSF classifies lubricants with no possibility of contacting a beverage or food product as H2 lubricants.

If a customer has a 100 percent H1 lubricant program, it eliminates lubrication as a potential chemical hazard, which means that a beverage processor does not have to have a HACCP plan in place for lubricants, says Jim Girard, vice president and chief marketing officer at Lubriplate Lubricants Co., Newark, N.J.

Beverage manufacturers are not required to use food-grade lubricants in their facilities, but many are choosing to move in this direction for reasons of risk minimization and good manufacturing practices. In many cases, facilities make a distinction between areas of the plant. For instance, they can mandate the use of H1 registered lubricants in the production and packaging areas, and allow H2 everywhere else, says Kimberly Eldridge, North American market manager for the food, beverage and pharmaceutical industries at

Klüber Lubrication North America, Londonderry, N.H.

“At Klüber Lubrication, we advocate using NSF H1 products everywhere in the plant to avoid risk of contamination,” she says.

While most plants will use only food-grade lubricants, exceptions do exist, says Glenn Krasley, director of sales and marketing at Ultrachem Inc., New Castle, Del.

“When evaluating control points as part of their HACCP program, there could be instances where it is determined that a particular portion of an operation will not have any possibility of incidental contact,” he says. “If that’s the case, food-grade lubricants may not be applicable. To be absolutely sure, all lubricants should be food grade. If there’s a mix of nonfood-grade lubes in the facility, there’s a possibility that lubricants on hand could be used inappropriately.”

Equipment manufacturers also recognize the need for H1 lubricants, Lubriplate’s Girard says.

“Food-grade lubricants are very good performers,” he says. “They protect machinery, they lubricate machinery and they perform very, very well.”

In the past, food-grade lubricants were formulated using H1 white mineral oils with little or no performance additives, Ultrachem’s Krasley explains.

“Modern technology now offers a full range of performance additives that can be used to safely formulate food-grade lubes,” he says. “Modern formulations utilize synthetic base fluids and a variety of sophisticated additives that will greatly outperform any mineral-based food-grade lubricants. Our Omnilube line of H1, NSF and kosher certified lubricants are designed specifically for individual types of machinery typically found in a beverage manufacturing operation.”

The lubricants industry is still fighting the negative impression that operators must sacrifice performance to meet safety standards, Klüber’s Eldridge says.

“Today advances in base oil, thickener system and additive technology mean that customers can expect the same — and in some cases better — performance when using an NSF H1 registered product,” she says. “When we are developing a new product for this industry, we use this criteria.”



▲ Klüber Lubrication offers a range of lubricants for beverage-makers.

DRY CONVEYOR LUBRICATION

Ecolab, St. Paul, Minn., developed the eco-friendly DryExx dry lubrication program, a patented technology that eliminates virtually all water from the lubrication process on conveyors. Ecolab's touch-free delivery system applies with traditional spray nozzles, and it is compatible on lines filling PET, glass, HDPE and carton packaging.

DryExx reduces water consumption up to 90 to 97 percent versus conventional liquid conveyor

lubricants, Ecolab says. Precise application leads to the ideal coefficient of friction, decreasing down and broken bottles, which also improves sustainability efforts. The optimal lubricity can draw less amps, prolonging the motor life as well, Ecolab says. In addition, DryExx is H1 incidental food contact registered to meet many beverage-manufacturers needs, the company says. **BI**

Klüber Lubrication recently released Klüberfood NH1 87-703 Hyg, a product designed specifically for aseptic cold filling of beverages like fruit juice and milk.

GREEN INITIATIVES

On top of providing improved functionality, lubricants also aid beverage manufacturers' sustainability goals.

For example, a properly chosen lubricant affects the overall efficiency of a component and machine. Therefore, by choosing the right gear oil for a gear box, you can drive the temperature down and the efficiency up, thereby conserving energy, Klüber's Eldridge says.

"Klüber Lubrication adheres to the belief that less is more," she says. "For many years, we have been advocating the use of fully synthetic products to support initiatives to lower lubricant consumption. Newer generation oils and greases, designed with synthetic base oils, allow end users to bring less product into their facilities, create less waste and aid in the achievement of green initiatives."

In addition, Ultrachem's synthetic food-grade lubricants have extended change out intervals.

"They can extend drain intervals from 2,000 hours for a mineral oil to 6,000 to 8,000 hours using our synthetic [oil]," Krasley says. "Since the oil is replaced less often, there's less to dispose of on an annual basis."

Synthetic lubricants also have a much wider operating temperature range than conventional oils, he says.

"The ability to flow more readily at cold startup equates to less energy consumed and a reduction of energy needed for normal operation," Krasley explains. "This can be observed by using an ammeter to measure the electrical energy on a piece of equipment, and

recording readings from conventional oils and comparing them when using synthetics. Although this drop may appear to be small initially, on an annual basis with many pieces of equipment, the overall energy savings is significant."

Synthetic lubricants have a higher degree of oxidation stability than conventional oils, meaning they won't degrade as readily over time, Krasley says.

"This inherent ability to resist degradation allows the lubricant to last much longer in a given application, and you won't need to 'top off' as often between oil changes," he says.

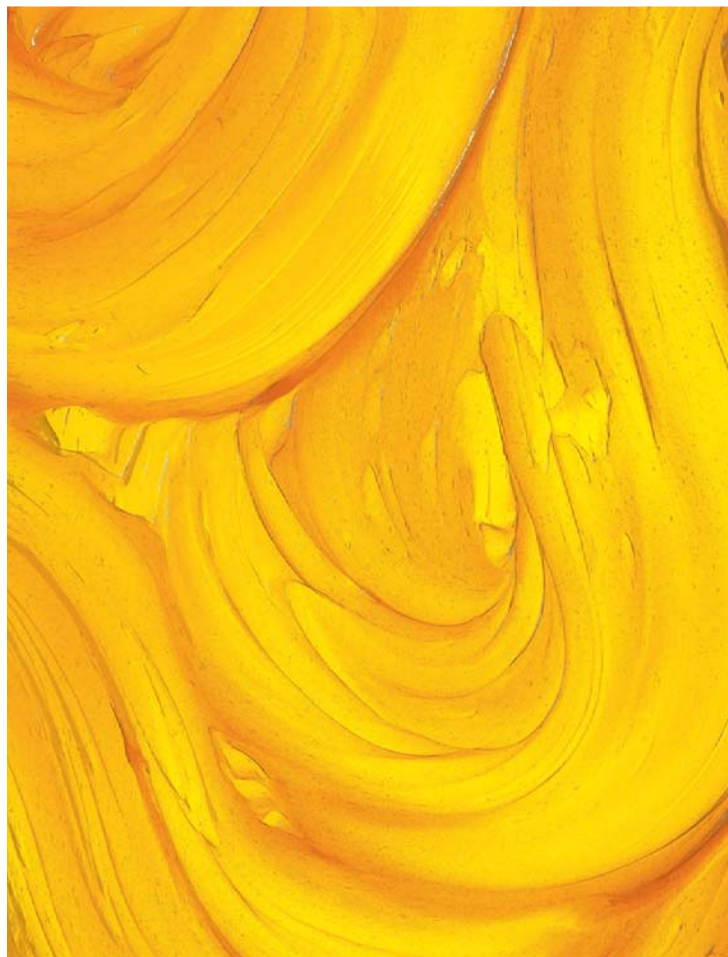
The chemical makeup of some food-grade fluids and greases are inherently eco-friendly as well, says Lubriplate's Girard. "They don't have components harmful to the human body or harmful to the environment," he says.

Because food-grade lubricants last a long time, if not longer than other lubricants, the user has less drum disposal and less lubricant disposal issues as well, Girard says.

"The reason why the demand for synthetic lubricants is on the increase is because they last longer," he explains. "So not only are they better for your equipment because they last longer, but they are also more eco-responsible."

Another benefit of synthetic fluids is that they offer lubricant consolidation, because they perform over wide operating applications, Girard says. Lubricant consolidation also eliminates the potential for lubricant misapplication, he says.

Lubriplate continues to develop new synthetic fluids, such as polyolester oils that work well in high-temperature applications, calcium complex synthetic grease that is highly water resistant and functions well in a high-temperature range, and polyalkylene glycol fluids that are effective as gear box lubricants and in oil recirculating systems. **BI**



Lubrication: The secret ingredient in your recipe for productivity

Partner with Klüber Lubrication to get more from your operation. We've developed a broad line of kosher, halal and ISO 21469 certified lubricants to meet the extreme demands of the food industry.

Our NSF H1 lubricants boost efficiency, save energy, reduce lubricant waste and extend relubrication intervals—all while meeting your food-grade requirements. Klüber Lubrication promotes a healthy production line and a healthy bottom line.

Talk to one of our specialists to find your secret ingredient.

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