



Technical Topic

Converting Your Plant to Food Machinery Lubricants

Recalls of food and beverage products due to contamination concerns have risen significantly over the last decade. Considering that recalled products can be devastating to a brand and potentially harmful to consumers, it's not surprising that the U.S. Food Processing 2008 Annual Manufacturing Trends Survey indicated that food and beverage processors' number one concern is food safety, more so than energy, labor issues or environmental concerns.

This trend extends far beyond the United States, impacting regions all around the world. In today's ever expanding global economy, food and beverage processors are under more pressure than ever to ensure the safety of their products, protect their brand reputation, enhance their company's productivity and expand profit margins in the face of tightening economic times. One of the important areas that food and beverage processors need to focus on to help achieve a food safe and hygienic processing environment is lubrication. Using lubricants that are suitable for use in food machinery where incidental food contact may occur will not only help to minimize the potential for product recalls and maintain brand integrity, but can also enhance equipment performance thanks to advancements in lubricant chemistries.

Food and beverage processing plants often have a wide variety of machinery and converting all lubricants to NSF H1 or HT1 (National Sanitation Foundation – H1 for incidental food contact, HT for Heat Transfer) registered lubricants can minimize the potential for inadvertent and unacceptable food contamination by conventional lubricants. However, the process of conversion is often viewed as a complex task. The guidelines described below offer best practices to improve the quality and effectiveness of equipment conversion.

Proper Storage and Handling of NSF H1 and HT1 Lubricants

Following the proper storage and handling procedures for NSF H1 and HT1 registered lubricants can help maintain the integrity of the product's formulation so it can provide the anticipated performance characteristics when it's applied to a piece of equipment.

Maintenance professionals and plant managers should thoroughly examine the lubricants upon delivery. New lubricant packaging should not be damaged, especially the package seal. Any damage



to the seal could indicate that the lubricant has been potentially contaminated and should not be used.

NSF H1 and HT1 registered lubricants should ideally be stored inside in a temperature-controlled (+5°C (40°F) to +25°C (77°F)), dry storage room and segregated from non-NSF H1 and HT1 registered products. Each product should be properly labeled. Lubricants should be added on a FIFO, First In First Out, basis which is facilitated by proper storage area product rotation.

When dispensing the product, maintenance professionals should use containers clearly marked for the appropriate NSF registered product to avoid any contamination. Additionally, lubricant family segregation principals should be followed, as done with non-NSF H1 and HT1 registered products.



Converting equipment to NSF H1 or HT1 registered lubricants

There are several steps that need to be followed to convert the lubricant in a piece of equipment to an NSF H1 or HT1 registered product. Documentation of your actual conversion process is recommended.

Step 1. Operate the system under normal conditions until stabilized operating temperature is reached with the existing lubricant.

Step 2. While oil is still warm, drain as much oil from the system as possible. Breaking of low point flanges and drain points will improve lubricant removal. If possible, manually clean reservoirs and larger piping with clean, lint-free rags, shop vacuum and/or squeegee. Do not use solvents. Visually inspect for cleanliness.

Step 3. Drain filter housings and replace all filters.

Step 4. Fill the system with sufficient fresh NSF H1 or HT1 registered oil to ensure full circulation. Note: this charge of oil to be treated as a flush oil and not final fill.

Step 5. Operate the system under normal conditions for a minimum of one hour. Exercise cylinders and circuits to improve the flush process. Should the flushing fluid show signs of contamination (excessive solid or water contamination, through visual or used oil analysis inspection), additional circulating and filtering time may be necessary.

Step 6. While oil is still warm, drain as much oil from the system as possible. Breaking of low point flanges and drain points will improve flush oil removal. Do not use solvents. Visually inspect for cleanliness.

Step 7. Drain filter housings and replace all filters.

Step 8. Fill the system with recommended NSF H1 or HT1 registered lubricant. Assume normal operation, monitor filters and conduct oil analysis.

Step 9. Clearly label all machinery equipment with the type of lubricant that should be used. Clearly label "Fill only with NSF H1."

Note: Drained oils may be analyzed and considered for use in non-NSF H1 or HT1 applications. Oils deemed not suitable for continued use should be disposed of in an environmentally acceptable manner.

More complex systems may require additional flushing.

Food Quality First

The steps outlined above are offered to promote improved food quality and ensure the brand integrity of food products. Use of high quality NSF H1 and HT1 registered lubricants combined with sound conversion practices should support safe and reliable operation of your food processing facility.

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