



## Technical Topic

# Food Machinery Lubrication

### Introduction

Lubricating oils and greases are an essential element to the smooth running of food machinery, mixers and conveyors. Part of the risk of any lubrication system is the chance of accidental and/or routine leakage into or onto the food.

### Why should food registered machinery lubricants be used?

Health and Safety concerns have become the number one focus of attention in industry, commanding a high level of media interest. In the food processing sector in particular, there is a heavy burden on manufacturers to minimize the risk and impact of food contamination. Such incidents can result in product recalls, public notices and negative publicity let alone potential litigation. This could cause serious damage to the company's reputation and, in extreme cases, destroy a brand. It is vital, therefore, that the food industry governs and controls food safety hazards to minimise any health-related incidents.

Using appropriate food registered machinery lubricants as an integral part of an effective quality management process can help reduce those risks and protect the brand. Companies that handle food are obliged to identify, evaluate and manage the risks to health and such assessments cover the entire supply chain from production to the consumer's table.

Here are two examples of food contamination incidents related to lubricants\*:

1. A major beverage manufacturer recalled 3,600 cases due to gear oil contamination.
2. A beef processor was forced to recall product contaminated with hydraulic oil.

It is estimated that many food processing manufacturers in the U.S. do not use NSF H1 registered lubricants at all.



### Properties of food machinery registered lubricants

First and foremost, high quality lubricants for food machinery should meet the legislative and regulatory requirements and the customer needs. Additionally, to reduce risk and to ensure maximum benefit from high quality lubrication, products should also be fit-for-purpose and demonstrate high performance, preferably with additional benefits over conventional lubricants. In the absence of any international system to regulate the use of lubricants for food machinery, the industry adopts globally the general requirements of the United States as set out by the U.S. Food and Drug Administration (FDA).

## **How do food machinery registered lubricants comply with the U.S. system?**

The U.S. FDA manages a list of components (chemicals, additives, baseoils, etc) that may be used in a lubricant suitable in food and drug manufacture. All lubricants suitable for food machinery must be carefully formulated with specialty base oils and additive systems that comply with the FDA requirements whilst preserving important lubrication properties and performance.

## **So what are NSF H1 registered lubricants?**

The formulation of a lubricant for food machinery may be submitted and registered with the National Sanitation Foundation (a U.S. based not-for-profit public health and safety organisation) who comprehensively reviews the data for compliance with the U.S. FDA requirements. Following a successful review, the NSF issues a unique product registration number and lists the product on its web-site. With a successful review, the lubricant is allowed to have the NSF claim and logo on its packaging and labelling. NSF H1 registered means the lubricant is 'suitable for use where incidental contact may occur between the lubricant and the food'.

## **Is it only the formulation of the lubricant that is considered suitable for food machinery?**

No, it is extremely important not just to control the formulation for it to be considered suitable for food machinery but also to reduce any potential contamination risks before final delivery to the customer. For this reason a robust process must be used to control the blending, transportation and packaging to reduce any potential contamination risks.

## **Does the use of FDA approved additives and base oils limit the performance of the lubricant?**

When 'food-grade' oils started appearing, they consisted, due to additive restrictions, of pure white oils which sometimes resulted in limited lubricating performance, especially given the difficult operating environments posed in food processing plants. Initial reception of these pure white oils was poor but since then technology has advanced considerably for both base oils and additives, so performance should not be limited.

## **How does HACCP and the use of food machinery registered lubricants help manage my risk?**

More and more food manufacturers are being requested by their customers - global, regional or local - and by regulatory bodies to run risk assessments to help identify any potential risk areas and to take appropriate action to minimize them.

HACCP or Hazard Analysis and Critical Control Points is an example of an increasingly popular global risk management procedure, which helps the manufacturer identify and review high risk areas where lubricant leakage could occur. Manufacturers should consider strongly the use of food machinery registered lubricants in these areas.

Many customers are now going even further than just the Critical Control Points. The presence of non-food machinery registered lubricants in the plant always poses some risk of being accidentally dispensed in machinery and contaminating food registered lubricants. Customers are choosing that the whole plant/factory be lubricated with food registered oils and greases in order to minimise that risk.

## **Why use Mobil food machinery registered lubricants?**

ExxonMobil offers a range of NSF H1 registered lubricants based on synthetic base oils, which add benefits of longer life, lower maintenance costs and potential energy savings compared to a conventional oil. Moreover the same Mobil-branded food machinery registered lubricants can be used above and below the processing line, thus reducing inventory and minimising the risk of non food registered lubricants being used in sensitive food applications.

Mobil-branded NSF H1 registered food machinery lubricants are designed not just solely to help customers reduce the risk if leakage occurs - but optimised to help ensure maximum performance, longevity of equipment and trouble free operation.

Mobil-branded NSF H1 registered food machinery lubricants are

- in compliance with the FDA listing
- Kosher (Parve) and Halal (not all products)
- multi purpose in application for both below and above the processing line
- designed to offer outstanding lubrication performance.

This document relates to the general food industry globally. For more detailed information, please contact your local or national authorities.

\* Source: 1994 FDA Enforcement Report.  
2005 United States Department of Agriculture News Release.

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