Minimum-quantity lubrication is the key to efficient production.

Know your grease

Food machinery lubricants are an important step towards maintaining high food safety standards

For a food product manufacturer the key to a good product is a good recipe. This applies both for the ingredients used in beverage, meat, bakery or dairy products and for the operating materials used in the plant. Using the right lubricant for the machineries in the food industry is not only essential for the smooth running of the machinery but also plays a vital role in avoiding contamination of food products. Choosing and implementing the right lubrication programme will ensure that a plant operates more safely and efficiently, in addition to making it more profitable.

One of the challenges that food manufacturers face today is to avoid contamination of food products during manufacturing while making production processes as efficient as possible. One of the best practices followed in the industry is to use specially registered and certified lubricants so that the contamination risks in the plant are as low as possible. This helps to make sure that the long-standing good reputation of a company is not jeopardised. This control of contamination risks is the key focus area in the HACCP guidelines. There are many applications in the food industry such as agitators, blowers, mixers, fillers, ovens, compressed air and packing machines, where the lubricant used in components could come into contact with food products. The risk is of using a lubricant that is non-compliant with the regulatory standards of food machinery lubricants and using it for an application which comes in contact with the food product thereby contaminating the food.

Food machinery lubricants have to comply with the food regulations as listed by the certifying authorities. They have to be physiologically inert, should not have any taste or smell and should be internationally approved. Apart from this, food grade lubricants also have to meet the following general technical requirements of: reducing friction and wear, protecting against corrosion and dissipating heat and have a sealing effect.

Historically, the United states Department of Agriculture (USDA) but now the National Sanitation Foundation (NSF) registers lubricants for use in the food industry. The lubricant

manufacturer has to prove that all the ingredients used in its formulation are on the FDA (US Food and Drug Administration) list of allowable substances in accordance with the guidelines of security CFR 21 (Code of Federal regulations). Apart from NSF certification, HALAL certification is also of importance in many parts of the world.

NSF H1 lubricants are suitable for incidental, technically unavoidable contact with a food, beverage or pharmaceutical product. These lubricants may be safely used in applications like agitators, blowers, mixers, fillers, ovens, compressed air and packing machines, where the lubricant used in components could come into contact with food products.

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, beverage or pharmaceutical product is absolutely impossible. These lubricants are sometimes referred to as food-plant or food-machinery lubricants in the industry and may be used below the line. The distinction between these two designations – H1 and H2 – is especially critical when dealing with issues of contamination and potential product recall.

A good lubrication plan will contribute to lowering three major budget pieces: energy consumption, components and labour.

Bottle filling machine in operation: A critical area where food machinery lubricants have to be used.

Many food-manufacturing plants are now using H1 lubricants for the complete production line in order to reduce the risk of the wrong lubricant being used in the wrong place, i.e., taking an H1 lubricant where H2 should be used. This can also result in lower stock inventory and lower costs. In addition to the above, there are also other categories like NSF 3H, NSF K1, NSF HT1 for products used for different applications like release agents, cleaner and heat transfer fluid respectively.

Until now, a lubricant's recipe and its intended use were the only items that were reviewed and regulated. However, the "ISO 21469 - Safety of machinery - Lubricants with incidental product contact - Hygiene requirements" - certification programme, is much more comprehensive and covers the manufacturing processes too.

ISO 21469 is the international standard for the hygiene requirements for the formulation, manufacture and use of H1 lubricants used in the food-processing and pharmaceutical industries. The NSF developed a certification procedure on the basis of ISO 21469, which includes annual inspection of the lubricants producing plant by an NSF auditor to check strict adherence to hygiene requirements, preventing contamination during the manufacture of H1 lubricants. Product samples are taken on an annual basis and analysed for contamination. Even the lubricant packing, storage and use are evaluated during the audit. In order to get a plant certified under ISO 21469:2006, it may be necessary to make some changes in the manufacturing process calling for heavy investments to enable compliance.

Klüber Lubrication was amongst the first few companies which was able to comply with the stringent requirements of this standard. This means that not only is a product certified but so is the whole manufacturing process. This whole process ensures complete protection against contamination during lubricant manufacturing.

Lubricants are a small part of the whole plant operating budget. However, the real cost benefit of a lubricant, which facility managers cannot see in the lubricant budget, shows up in other areas. A good lubrication programme impacts on the three biggest pieces of the budget pie: energy consumption, components (spare parts inventory) and labour. If facility managers are using the right lubricant, which extends re-lubrication intervals, they can save on a maintenance personnel's time, because they do not have to lubricate the machines as often. Facility managers also save money, when it comes to spares inventory, because components last longer. This saved capital can then also be used for other projects.

Energy efficiency is something which 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. MT

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