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FOOD GRADE LUBRICANT

SUPPLEMENT

H1 food lubricants in the industry

Andre Adam, H1 Global Food Lubricants
Workgroup Chair, ELGI

3

The new Food Information Regulation – what impact will it have on your business?

Pete Martin, Head of Trading Law
(EMEA) NSF International

9

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H1 FOOD LUBRICANTS IN THE INDUSTRY

Andre Adam

H1 Global Food Lubricants Workgroup Chair, ELGI

In general, we can identify four main parties with an interest in the food producing industry:

1. Food producers
2. Equipment producers
3. Law makers
4. Lubricant producers

All parties involved have a common interest. They want to avoid negative attention from the general public while doing what they want to do in the food industry.

Food producers have a key interest in avoiding negative attention. We only have to switch on the television to realise the amount of Euros involved in marketing brand promotion. An incident will be very expensive and could lead to discontinuing a brand. It is obvious there is, or should be, great interest in the food producing industry to invest to avoid negative incidents such as lubricant contamination. The leading producers are all aware of the need to act responsibly and to have introduced various tools as part of their HACCP program such as GMP practices, ISO 22000 and of course H1 food safe lubricants in all areas of risk. Surprisingly there are still food producers who could improve their measures in avoiding risks to public health. Having a single pail of H1 lubricant on site for the health inspector to see is not considered a proper HACCP practice. When an incident happens, the law makers will prosecute

management in case of serious neglect and the penalties are very serious for the company but also for the responsible individual. Proper execution of HACCP will avoid such risks. Use of H1 lubricants is part of the execution of the plan.

H1 lubricants used to have a bad reputation from their early years. Today's H1 lubricants provide improved performance and are capable of meeting industry standards. Similar to industrial non H1 lubricants, performance levels can vary from different suppliers.

The equipment manufacturers have a key role and a key interest to design the most safe and efficient equipment. The industry organisation EHEDG is a great support in the increase of awareness towards this. The trend of new equipment designs often results in higher output, velocities and temperatures with direct implications for the lubricants used in food producing equipment. Often this results in

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smaller oil sumps that lead to higher stress on the lubricants used. The industry has a major role in educating equipment users on safe lubrication and support of the HACCP programs of the users. Current acceptable levels of contamination are hard to determine (10 ppm maximum, dependent on the chemistry). We need to work with all parties involved to achieve a work practice that is both safe for the final user of the foodstuff as well as workable for the equipment operator. It should fit into any proper HACCP plan without excessive cost or time for the equipment operator. Currently, the H1 food lubricants workgroup formed under the ELGI, European Lubricating Grease Institute, working with UEIL and NLGI has started to study a possible guideline for the user of the lubricant to incorporate into the work practice in the HACCP protocols.

Lawmakers have an interest in avoiding negative attention around food incidents. Recent years have shown the level of unrest that evolves when bacterial contamination or animal diseases occur that affect humans or animals. The public want to know why these happen and why nothing was done to prevent it. To reduce the risk of avoidable incidents is a key element in the policy maker's area of interest. The

European directive is a very strong document that puts the responsibility on the user of a lubricant and the consequences for an event with the management of the plant. The impression exists that law makers react strongly to incidents, resulting in ad-hoc rules or legislation that are often close to unworkable or lead to expensive implementation costs for the industry. It is in the industries interest to avoid such incidents.

The lubricant producers have a major role to play. Education of the user of the lubricant is a good starting point. Clear communication to the market explaining what a H1 lubricant for incidental food contact is should be at the top of the list. At the moment, many products are still put in the market as 'food lubricant' without any reference to H1 or HX1 components or production standard under HACCP. These products are misleading due to the unprotected name FOOD LUBRICANTS. It would be recommendable if the whole industry would adopt similar practice for the use of H1 similar to ISO 9001. With ISO 9001, it is common to reflect the result, which is the standard. The auditing body is of lesser importance. The auditing bodies for H1 lubricants (NSF and InS) however have found a way to promote their institute on every product label. This creates

confusion among customers seeking NSF or InS registration rather than H1 registration.

Not widely promoted in the market today is the ISO 21469 standard. Again, here we as an industry should clearly communicate what the standard is and what the benefit for the actual user is when selecting products made against this hygiene standard. Today very few producers have opted for obtaining the ISO 21469 standard for possibly a number of reasons. Confusion on how to obtain this and fears of high cost could be some of the drivers. The result is a more confusing message to the market. ISO 21469 is, in simple terms, an HACCP approach for H1 food lubricant production. ISO standards can be audited by many bodies so here again, we should communicate the standard uniformly with the goal to inform the customer clearly. More programs related to the food industry are initiated. One can wonder if there is great benefit to work on new programs when the current ones are not yet fully integrated into the industry. All these programs have as a goal to avoid a major incident, but effectively increase the cost per litre and as such are contradictory in providing the food industry with cost effective lubricants.

Another area of concern is the H2 standard.



The advertisement features a large yellow background. On the left, there is a graphic of a blue gear partially submerged in a yellow oil droplet. The text 'FRAGOL' is prominently displayed in bold black letters at the top right. Below it, 'Private Label H1-Lubricants' is written in a large, bold, black font. The main body of text describes FRAGOL as a knowledge-center for lubricant design, offering a full range of products made in Germany under ISO 21469 and certified H1, kosher, and halal. Two highlights are mentioned: Long Life Compressor Lubricants and High Temperature Chain Oils. The advertisement concludes by stating that they provide the latest technology products, technical support, and after-sales service. The website 'www.H1-Lubricants.com' is listed at the bottom left.

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This is registered at the same bodies that register for H1 (InS and NSF). H2 lubricants are 'not for food contact' and do not fit in any HACCP program where incidental food contact may occur. The H2 registration is often misused, as it reflects that these products are suitable for use in the food plant, which is incorrect. It might be more transparent if the category is discontinued. Again, here the lubricant industry can contribute by withdrawing these products from registration as they do not serve a clear purpose. Other conflicting registrations are 3H and H3. The first is suitable for direct contact with food (as in mould release agents). The H3 however does not allow direct contact with food.

Regarding the H1 lubricants for incidental food contact, producers need to increase their activities in a number of areas:

- Increase awareness of the H1 status rather than 'food lubricants'
- Get a truly global accepted status for H1 lubricants: GHS (less national legislation)
- Eliminate H2 status or introduce other standard for H2 lubricants
- Communicate what ISO 21469 is all about
- Train and support users with their HACCP plans in conjunction with lubricant consumption
- Introduce next generation H1 lubricants to meet new and more stringent demands of equipment builders and operating conditions
- Educate lawmakers in seeking solutions in available legislation, rather than creating new guidelines that result in more chaos and expense
- Work together with the key players, law makers, equipment producers, equipment users and lubricant producers, to create proper procedures, performance standards, work practices and a clear communication to the market

Conclusion

H1 lubricants are going to be with us for a long time. Good quality H1 lubricants will meet current and future demands on safety as well as the technical expectation by the equipment designer. The many limitations to the lubricants due to FDA component listing will increasingly demand the specialist approach of the 'lubricant designer' where small volumes are the norm in this industry. I believe that the true specialist will be able to meet the future demand in H1 lubrication, supporting the food producers to even safer standards.

The party that benefits most has not been mentioned in this article, i.e. the person or animal that consumes the products that were produced in a safe and efficient way. If the products reach the user and can be consumed unnoticed, due to lack of incidents, we have achieved exactly what we wanted to achieve as an industry.

BIOGRAPHY

Andre Adam is currently the Global Sales Director at FRAGOL GmbH+Co. KG, a German based Specialty Lubricants producer. Originally graduating as a Marine Engineer, he has more than 30 years' experience in the lubricant industry with position at Castrol, Petro-Canada and Anderol. As current Chairperson of the H1 Global Food lubricants workgroup under the ELGI, he continues to promote the interests of the lubricant industry in the food segment. Fragol produces and markets a complete portfolio of H1 lubricants produced under IS 9001, ISO 21469, Halal and Kosher. Fragol is a member of the EHEDG.



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HAPPY MACHINES FOR SAFER FOOD

Eddy M. Stempfel

Global Product Manager & Application Specialist – Food Division, FUCHS LUBRITECH GmbH

Transportation, transportation, transportation ... chains and conveyors are used for transportation duties almost everywhere:

- Raw food material, food intermediates, finished (food) products
- Cooking of food – i.e. bread ovens, deep fat frying etc.
- Sterilising of food – hydrostatic sterilisers
- Freezing of food – i.e. spiral compact freezers
- Packaging – i.e. cans, plastic bottles, cardboard boxes



Hans Renold, a Swiss engineer who went to England in 1873, is named as the main inventor of chains. In 1880, he invented and patented the bush roller chain (although 16th century sketches from Leonardo da Vinci also show a chain with a roller bearing).

Bush roller chains are the most common type of chains used for the transmission of mechanical power on bicycles, motorcycles and in industrial and agricultural machinery. They are simple, reliable and efficient – but they do require attention to maintain and lubricate.

As most of these chains usually run close to the food being transported, it is imperative that they are lubricated with high performing food grade chain oils. Choosing the right products is not an easy task as chains may be of different makes and have to cope with different environments, such as:

- High or very high temperatures in bakeries
- Low or very low temperatures in freezers

- Dusty environment in wheat and / or animal feed processing
- Variable speed and load in conveyors
- High humidity in sterilisers
- Daily washing / cleaning

The above environments cannot be fully served with one lubricant only. Therefore, lubricant suppliers usually offer different products, ranging from graphite type oven chain lubricants to advanced synthetic formulations, to meet the most demanding needs. Formulation of such lubricants has become common knowledge but when it comes to food grade restrictions e.g. FDA 21 CFR 178.3570, it can be more challenging.

Choosing the right food grade lubricant can reduce downtime, prolong service life of valuable equipment and provide a more efficient performance. However, this cannot just be achieved by using the correct lubricant but by applying a proper maintenance schedule of the chain as well, which could consist of:

- Time schedules
- Proper cleaning of the chain (removing debris, water, dirt, grit, dust, flour, seeds, oxidation deposits in hot environments) often by 'burning off' of deposits, thermal shock-blasting with dry ice, high pressure cleaning and ultrasound or just by manually brushing and scraping.
- Applying the correct lubricant and amount



by an appropriate method to ensure that the lubricant can penetrate the chain correctly, i.e.: by brush or (automatic) drip feeder, by passing through an oil bath or by pressurized automatic lubrication systems

Following the above measures and using dedicated food grade chain oils finally results in both improved food safety and better brand protection as well as lower overall maintenance costs.

So, don't be caught with an unforeseen shutdown of a production line or even a recall resulting from chain deposit contamination. Get your NSF H1 registered synthetic chain oil today because prevention is the best policy.



what's hiding

Contaminants emerge where they haven't been seen before. New regulations are enacted, raising the bar on processes and suppliers. From arsenic in apple juice to bromate in bottled water, to fungicides in orange juice, the world's leading beverage manufacturers and regulatory bodies trust us for the validated methods, sensitive, reliable instrumentation, and laboratory information management systems to ensure compliance and maintain the confidence of their customers. From our Food Safety Response Center, to our local expertise and support, we're focused on ensuring the safety of the world's beverages.

inside?

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GC MS/MS



THE NEW FOOD INFORMATION REGULATION – WHAT IMPACT WILL IT HAVE ON YOUR BUSINESS?

Pete Martin

Head of Trading Law (EMEA) NSF International

The European Union adopted the new Food Information Regulation (FIR) in September 2011. Its purpose is to make food labelling easier to understand for consumers by simplifying and streamlining current legislation on general food and nutrition labelling into a single EU regulation. Areas covered include allergens, nano-ingredients and imitation foods as well as the presentation of nutrition information on-pack.

While the bulk of the requirements will not be in full effect until 2014 and nutrition labelling becoming mandatory in 2016, it is important that food manufacturers and retailers are fully aware of the regulation and the impact it may have on the provision of consumer information. Food Manufacture magazine quotes a possible cost per product for food manufacturers of implementing the changes at GBP 7,000, and that's not including staff training.

In theory, the Regulation will assist the consumer making more informed choices in relation to food. It is also intended that the use of the Regulation will allow for the free movement of legally produced and marketed food throughout the EU, as the requirements contained within it are directly applicable in all member states, which should ensure consistency across the Union. Previous legislation in this area took the form of

Directives, implementation of which in individual Member States gave rise to a number of differences across the EU.

The Regulation repeals (amongst others) EC Directive 90/496/EEC on nutrition labelling for foodstuffs and EC Directive 2000/13/EC on food labelling. These are used as a starting point and as a result, many of the principles remain familiar, but there are some significant changes.

So what are the most important changes?

- **Wider scope** – Transport from the EU is now included, covering, for example, flights from the EU. Responsibilities for food business operators have also been clarified – including relabelling, business-to-business requirements and the significance of

responsibility for food information; the food business operator within the EU whose name and address appears is responsible for the labelling (previously the name and address of manufacturer anywhere in the world was held to be sufficient to comply with requirements), or if the business is outside of the EU, the name and address of the importer into the EU must be used

- **Presentation of information on pack** – Tighter provisions on misleading, for example, 'imitation' foods, where a component that consumers expect to be present has been replaced, the pack must indicate what has been used as a substitute (e.g. vegetable oil in a cheese analogue). Pictorial representations will be more tightly governed, with a minimum font size specified – generally mandatory information will have to be 1.2 millimetres in height (based upon the size of 'x'), where the 'largest surface area' is less than 80cm², the 'x' height must be 0.9 millimetres. There is however no definition of the 'largest surface area'. 'Back of pack' nutrition information will become mandatory on the

being the indication of allergens for non-prepacked food

- **Country of Origin** – Origin requirements have been tightened and also extended to fresh and frozen meat. 'Place of provenance' has been retained, allowing for example Scotland or a recognised area to be used without reference to the UK. The Commission will also be reporting on widening the scope to include other foods, including meat and dairy products, unprocessed foods, single ingredient products and even ingredients that represent more than 50 per cent of a food (for example, wheat in bread?)

apply. In the UK, this will include standards for certain cheeses, creams and ice-creams. Member States are free to adopt national measures on the grounds of protection of human health or to prevent fraud, but

majority of prepacked foods, and it will be possible to voluntarily repeat on 'front of pack' information on nutrients of importance to public health. There is provision for what is known as additional forms of expression (AFE) as long as they do not affect the free movement of food, which in the UK is likely to see the resurgence of the push for traffic lights to represent nutrition information. There is the option for harmonisation of AFE in the future. It will be for member states to decide how they deal with loose-sold food (so much for consistency throughout the Union) with the only EU-wide mandatory requirement

- **Name of the food** – There are number of changes, including, where appropriate, use of the word 'formed', to indicate added water greater than five per cent in meat and fish, indication of foreign proteins, indication of 'defrosted' for meat and fish, date of freezing for meat and fish, and caffeine content
- **Allergens** – These must now be emphasised in a typeset in the ingredient list by means of font style or background colour, not allowing a separate indication
- **Date of durability** – While 'best before' and 'use by' dates will still be used, the 'use by' is going to be more tightly linked to food safety

Alongside these additions, there are also a number of national measures that will no longer

only in areas that are not harmonised and those measures must not be a barrier to trade for goods compliant with the Regulation.

Significantly for businesses, Article 37 simply requires that voluntary food information shall not be displayed to the detriment of the space available for mandatory food information. Will, we wonder, there be room for any further information once mandatory information, including a nutrition panel, is placed on pack?

Impacts for consumers

Views on the benefits for consumers are mixed. While, for example, it is true that changing the nutrition format on a label may have an effect on national obesity levels, the major UK retailers have already been adding nutrition information to products for some time now. The larger text size, and possibly more information present, may make it easier for the consumer to use the information, but on the other hand will they be simply overwhelmed?

Impacts for food businesses

Pete Martin, Head of Trading Law at NSF International and an expert in provision of on-



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pack information commented, "While there appear to be lots of changes, many of the current requirements and practices have simply been made more explicit and in theory are applicable across the whole EU, in theory making interstate movement of goods easier. One area that may have a significant impact for businesses is the minimum font size for mandatory information, in cases where additional mandatory information is required in the name of the food or country of origin, on a label which is destined for a number of states all with different languages. And, of course, we have to put all this in the context of the legal need to reduce packaging waste!"

Article 8 suggests that the business responsible for food information is the person under whose name the product is marketed. Yet it goes on to effectively say that retailers shall not supply food which they know or presume, on the basis of the information in their possession as professionals, to be non-compliant with the applicable food information law and requirements of relevant national provisions. This is confusing, says Mr Martin. What does 'as professionals' mean? What level of information is implied? Does this require retailers to review all

products they sell? There is currently no reference to due diligence, or ability to rely upon reasonable precautions. This may be clarified in implementing the legislation.

"It is likely that sanctions for enforcement in the UK will be a mixture of both civil and criminal proceedings. Given the current economic

“ The Regulation will require the majority, if not all, food labels to be addressed by the time the last requirements come fully into effect in December 2016 ”

climate, it is unclear whether there will be an appetite for rigorous enforcement of the new legislation, nor is it yet clear what degree of incorrect information would lead to a sanction. Will civil sanctions lead to more active enforcement of incorrect labelling in the UK?" he questioned.

What food businesses need to do to prepare for when the Regulation comes into force

The Regulation will require the majority, if not all, food labels to be addressed by the time the last

requirements come fully into effect in December 2016. It means that there is an opportunity to consider each product, perhaps resulting in manufacturers making a more concerted effort to address the nutrition profile of some products, or the name of other products that have become flights of fancy rather than an indication of the true nature of the food (or 'descriptive name', as it will now be). Mr Martin says, "Our advice to manufacturers and retailers is to take every opportunity to revisit labels as they arise, for example, in product improvements, recipe changes, launches, so that the full implications of font size and mandatory labelling can be explored early and you are not left with non-compliant packaging. NSF is already working with our clients, giving guidance on interpretation and reviewing labels."

Called 'The Most Trusted Name in Food Safety', NSF International was established in 1944 with the mission of protecting and improving public health and safety. NSF International offers a full spectrum of Food Safety services such as standards development, auditing, consulting, testing and certification. NSF's global presence has resulted in initiatives like standard CWA 15596 which was developed

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in partnership with CEN (European Committee for Standardisation) to achieve a more inclusive code of practice on the cleanability of commercial foodservice equipment across the EU. In addition, NSF International is one of the most prominent GFSI certifying organisations, and was the first to offer BRC storage and distribution certifications in North America. Below is more information about other relevant NSF programs.

Food equipment

One of the first programs developed at NSF International, the Food Equipment Program develops standards and protocols for commercial foodservice equipment. Program services include sanitation certification, product assessment, material and design review, certification and manufacturing facility audits.

Nonfood compounds

The NSF International Nonfood Compounds Registration Program was founded in 1999 as a continuation of the USDA's previous authorisation program. In addition to this voluntary global registration and listing, the program also offers comprehensive product

evaluation of food-grade lubricants to prevent potential contamination.

Focusing on lubricants

Lubricants, greases, oils and hydraulic fluids are used to lubricate moving parts in food processing equipment to protect against wear and corrosion, to dissipate heat caused by friction and to provide sealing effects. These lubricants may pose a potential health risk if cross-contamination with food products occurs. One method of reducing this risk is to incorporate sanitary equipment design into facility planning, although in reality, the potential for contact of the lubricant with the food product cannot be entirely negated. Some level of contamination will likely occur from leaks or drips off chains, conveyor belts and gearboxes, and oil and grease can be exposed on equipment at critical points of operation. Ensuring the use of food grade lubricants is a simple and logical method for effectively mitigating chemical hazards associated with potential lubricant contamination.

Ensuring quality for the future

In the coming months, food processing facilities

and the systems they have in place to protect consumer safety will be the focus in preventing the outbreaks that have occurred over the past several years in the food industry. Additional resources will be devoted to facility audits to ensure the necessary controls are in place on a continued basis. What can you do to prepare for these stringent requirements? Choose to use products in your facilities that have undergone a third-party approval process, to minimise the risk of contamination and to complement your existing HACCP plans. Taking this proactive approach will save you time and money when you are participating in these audits in the future.

Improving food safety is an on-going challenge between managing risk and maintaining efficiency. The use of food grade lubricants and cleaners, combined with maintenance and inspection procedures and thorough equipment cleaning should be incorporated into each processing facility's HACCP plan. The NSF Nonfood Compounds Program provides operators with a powerful means of minimising risk and improving food safety within their facilities.



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