



# Breaking the mould

WHEN IT COMES TO HYGIENIC PROCESSING ENVIRONMENTS, TRADITIONAL LUBRICATION TECHNOLOGY MAY BE A THING OF THE PAST.



The problems of supplying and maintaining equipment for food and beverage processing applications are well known. And among the most often quoted of these problems is the effects of the frequent wash-downs machines are given, to ensure high levels of hygiene. These effects include a tendency to progressively flush the lubricant out of conventional bearings – a tendency which often results in the premature failure of the bearings concerned. Naturally, as in any manufacturing environment, the consequent downtime is costly, so any design innovations that might help to overcome the problem are very welcome.

But it's a hard nut to crack. Although the standard approach of fabricating machines from stainless steel can protect the machines themselves from aggressive cleaning regimes, components such as bearings are not so easy to protect. But in recent years, one extremely effective solution has emerged – NSK's Molded Oil™ concept, an innovation which has proved exceptional in delivering increased reliability and longer maintenance-free periods. A plastic composite material containing lubricating oil (or grease), Molded Oil differs from other commercially available oil-impregnated plastics, where the oil content is a mere few percent by weight, by providing a lubricating oil content of more than 50% by weight. The result is a special solid lubricant that transforms the performance of machinery and equipment, in terms of reliability, maintenance-free intervals and operation, in environments exposed to high humidity, corrosion and contamination.

Today of course, many people are aware of the benefits of Molded Oil. Very recently though, NSK took another significant step forward by combining the reliability and

maintenance-free benefits of Molded Oil technology with the corrosion resistance of stainless steel in a range of ball-bearing units. The units are ideal for use in environments where cleanliness and high resistance to corrosion are priorities, such as food and beverage applications.

Manufactured in Martensitic stainless steel, to suit the working environment of the application, and to cater for the type of cleaning agents encountered in wash-down processes, the units reduce cost of ownership for users by providing resistance to corrosion and chemical attack and by offering cost and time saving benefits of prefabricated bearing units. Pillow block and flange types are available and – importantly – all versions are interchangeable with current NSK units, and also with ISO standard variants.

The advantages of Molded Oil technology are more than mere theory. There are many examples of users who have made large savings by replacing existing, and often costly, methods of lubricating machine parts. In fact, in real-world tests, Molded Oil offers more than twice the operating life of grease lubrication in water contaminated



environments. In addition, the technology means that operating environments are kept free of grease and there is no need for refilling of lubricant, as Molded Oil provides a continuous supply of lubricating oil.

The technology also overcomes the problem of loss of lubricant due to water ingress. Options on the stainless steel bearing units include the alternative (to Molded Oil) of a special USDA H1 – compliant, food grade grease and the fitment of a grease nipple to allow re-lubrication of the bearings.

## Cost Savings

### How Molded Oil saved £80K/year

Molded Oil technology has led to savings of almost £80,000 per year for one food producer.

Before adopting the NSK solution, the company was experiencing ball-bearing insert failures every four to six weeks, as a result of high-pressure washdown processes causing grease to wash out from the bearings and damage the seals. And the costs were high – estimated across its two processing lines at:

- **Downtime** – over £3000 per month, per line
- **Maintenance** – over £1500 per year per line
- **Bearing replacements** – over £1000 per year