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FOCUS COOLANTS & LUBRICANTS

AS PART OF ITS RENEWED FOCUS ON BUILDING greater collaboration with customers, Shell Lubricants undertook a study to understand lubrication practices in the manufacturing and construction sectors in India. Findings reveal that India's manufacturers are engaged and optimistic about Industry 4.0 technologies, with 46% of those surveyed anticipating that the resulting savings could exceed Rs 33

million. India's construction companies, on the other hand, recognise the benefits of a proactive maintenance approach, but are not necessarily succeeding in its implementation. Around 86% of those surveyed believe that effective equipment maintenance can lead to cost savings, but 82% still feel that maintenance is often deprioritised until there is a breakdown. An absence of senior management engage-

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— Manan Mehta

1. Metalworking fluid is an important business for the industrial lubricant segment.

ment in the importance of maintenance has come to light as one barrier to effective preventative action.

EMISSION CONTROLS

Like developed countries, India, the third largest lubricant market in the world, has also started to implement tighter controls on emissions. "We as a lubricant manufacturer are taking this opportunity to develop eco-friendly solutions in the field of metalworking by reducing dependence on certain elements and heavy metals in our formulations. We are also using certain base oils with better biodegradability as a core component in our formulations. Emissions can be controlled by using bio-based products and effective lubrication. The right choice of product will reduce the traction coefficient and result in saving energy. This is where Arabian Petroleum Ltd (APL) will contribute. We are going to launch a new programme called Complete Lubrication Management Programme (CLMP) to guide our customers on how to nurture the lubricant as an asset, right from the time it is brought on-site to the time it is disposed," says **Manan Mehta, director, Arabian Petroleum.**

Oil emission pollution is increasing on a day-to-day basis. Stringent regulatory norms were inevitable. "We are working on green chemistry so that emissions first should pollute at a bare minimum and

should be biodegradable. We are working on vegetable oil-based lubricants, which will lead to bare minimum pollution," adds **Munish Garg, MD, See Lube Technologies.**

GOING GREEN

Customers with a huge consumption of lubricants like metalworking fluids have started working towards vegetable-based lubricants for easy disposal. While vegetable-based coolants give extra-ordinary cutting performances and make difficult machining possible, they are simultaneously very expensive and have a comparatively shorter life. However, the popularity of products made with a blend of vegetable additives (esters) is gaining fast, wherein prices are moderate with an enhanced performance benefit. **Ratnesh Kumar Lal, VP, marketing, Raj Petro Specialities,** says, "Our customers are more concerned about coolant and oil disposals. Hence, our product development team has focused on making long-lasting products like high-end semi synthetic coolants with a life (sump life) of more than one year, as compared to conventional products with a life of only 2-3 months. We have also developed environmental-friendly products that are free from boron, chlorine and other halogens."

However, formulating with vegetable oils is coupled with challenges such as high carbon release.



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Therefore, it has to be well-balanced in products to ensure that there is optimum lubrication and zero compromises on the products' life. The issue of sustainability, also in the lubricant industry, is becoming increasingly important and the demand for bio-lubricants is increasing. Biodegradable lubricants are made primarily from renewable raw materials.

"As we have always produced our additives based on renewable resources, and therefore have many years of experience with these raw materials and related production technologies, the future lubricant industry constitutes a main focal point for us," explains **Yashwant Mahajan, DGM, R&D, lubricants, Grauer & Weil (India)**.



"We have also developed environmental-friendly products that are free from boron, chlorine and other halogens."
— **Ramesh Kumar Lal**

2. Vendors are partnering with customers/ OEMs more than ever before in order to develop better solutions for their specific needs.

COST CONTROL

Good filtration ensures that products can be reused up to a certain level. But it has to be monitored taking the critical parameters of oil into consideration. For example, while using any coolant, if the flashpoint drops considerably or the viscosity goes up, then it cannot be changed by filtration.

"Our lubrication management programme helps customers to identify the potential safety issues and resolve them immediately. We also provide customers with free regular testing of products which keeps a check on the necessary parameters and ensures better efficiency," avers Mehta. Products like hydraulic oils, gear oils and straight metalworking fluids are

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some of the products, which can be reused over a period of time.

"At See Lube, we are providing our key customers with the service to reuse lubricants, and are conducting training programmes in-house for identification of the lubricant condition. At some places, our teams are taking samples and testing lubricants for the requirement of regeneration through different methods. In short, we are aligned with our key customers for condition monitoring and regeneration of lubricants at a perfect time, so that the useful parameters are not affected and products can be reused after regeneration of lubricants, thus reducing the operating costs of our customers," says Garg.

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3. Oil emission pollution is increasing on a day-to-day basis.

PARTNERING RIGHT

Partnering with customers/ OEMs to develop better solutions for their specific needs is also something that is always done. Mahajan says, "With the product line GROWEL Sustainable Ester Lubes, we have developed the products that are specifically tailored to the lubricant industry. It includes glycols, olefins & esters, which are used as base oils for a variety of lubricants. GROWEL offers a complete range of lubricants for metalworking. Chlorine-free, these new generation oils meet the environment-friendly standards in terms of toxicity, reprocessing and the environment. GROWEL's product range has special listings or certifications; they can be used for lubri-

cants with special requirements. In addition to our range of base oils, our product portfolio contains high-quality metallic soaps, alkaline soaps and fatty acids that are used as additives for different lubricant applications."

S K Singh, director, S-CCI Golden Cruiser, adds, "We had introduced the super long-life coolant range, which is being used by many OEMs in India and globally. The change (lifecyle) of these super long-life coolants ranges from 8-10 years. That in itself has made a change in the environment. The used coolants which are harmful to the environment primarily for the use of monoethylene glycol are now being disposed of after a much longer period than earlier. This is a

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major step towards environment preservation, especially in India, where there is no organised system for collection of used coolants or ways to treat or refine it to make it environmentally safe."

Tailor-made solutions are the need of the industry, and that's where APL has made a mark. For instance, an OEM faced an issue of very low productivity and tool life in a certain broaching operation. We developed a bio-based synthetic lubricant for them, which increased their output from 9,000 jobs to 47,000, and also increased the tool life. The product has also resolved the issue of excessive misting on the shop-floor, which caused safety and regulatory issues. We have also developed an EP grease without sulphur



chlorine and fluorine for an OEM, and a low viscosity high-flash coolant for a grinding application for a tool manufacturer, who until recently used a high-viscosity product that affected heat dissipation and lowered the surface finishing," says Mehta.

TREND CHECK

The global coolants & lubricants market is highly fragmented. After China, India is becoming the next manufacturing hub due to foreign direct investments, availability of skilled and unskilled labour and favorable government policies, thus experiencing a rapid economic growth.

"Due to this speedy growth in APAC, highly sophisticated fast-productive machining is the latest trend in this part of the globe. Moreover, there is an increasing inclination on Total Quality Management (TQM) and an emergence of environmental-friendly products – like bio-degradable or near-dry machining application (minimum quantity lubrication or MQL). Slowly, India is experiencing some of these revolutionising trends, but it will take another 3-5 years to witness further changes," says Lal.

Metalworking fluid is an important business for the industrial lubricant segment. The sector is highly competitive in the Indian context, but has a bright growth prospect in the near future. Globally, there is an increased demand for semi-synthetic and synthetic oil over regular mineral oil, due to cost-effectiveness, ability to flow even during winter, and a better viscosity index.

"Water-based formulations are gaining popularity due to their ability to transfer heat and maintain the life of the engine for a longer duration. The one trend that's going to dominate the market is biodegradable lubricants. It is going to be the crucial component in all the future formulations," says Mehta.

With the Indian government implementing Bharat Stage (BS) IV at the end of 2015, in order to introduce better emission standards and curb air pollution, the lubricant industry has already shifted its focus to upgrade the quality of lubricants, which certainly seems to be the right trajectory for the industry. ■

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4. India is becoming the next manufacturing hub for coolants & lubricants.