



Minimac System is dedicated to developing innovative products and technologies that will meet the evolving demands of future lubrication management

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Q-1. What recent innovations in sustainable lubrication technology has Minimac Systems introduced, and how do these innovations differentiate your products from competitors?

Ans. Minimac Systems Pvt. Ltd. has always been passionate about innovative, cutting-edge products that provide cost-effective solutions to users in the industry. The agenda behind this is to offer maximum lubrication reliability and sustainable solutions for better lubrication life-cycle management. Under this pursuit, we have been innovating and developing multiple concepts. The latest concept we introduced in the industry was on “Circular Economy in Lubrication Life Cycle Management”, which contains three concepts of “Circularity in Lubrication”: Nano Circularity, Micro Circularity and Macro Circularity. Under Nano Circularity the overall lifespan of in-service lubrication can be increased. Through Micro Circularity the end of life treatment for the lubricant can be achieved. Thereby, the lubricant can be reused even after the end of its lifespan. As a part of Macro Circularity, overall lubricant can be recycled and it can be re-refined to form a re-refined base oil. Thus, 100% circularity of the lubricants can be achieved. Through these three innovative concepts, we can help the users

achieve “Circularity in Lubricant Lifecycle Management. Our concepts are versatile and flexible. Moreover, the innovations such as the one mentioned above have various technological advancements and hence we stand out from our competitors.

Q-2. How does Minimac Systems integrate the latest technological advancements into its lubrication solutions to enhance performance and sustainability?

Ans. Minimac Systems is a research and development-oriented organization, which works in the field of Lubrication Lifecycle Management. Our major focus is on technological developments for which we carry out multiple research projects majorly focusing on lubricant purification and the chemistry of lubricants. There are several configurations of lubricants which are classified based on the origin, usage and application of lubricants. Hence the deterioration of lubricant properties also varies based on their usage and lifecycle.

So, Minimac Systems introduces various technologies that work on the molecular level of lubricants thereby ensuring 100% refinement of in-service lubricants. The technologies that we develop can be used in multiple combinations to form several products. Along with the

supply of equipment, we also focus on machinery for services and as a part of our service portfolio, we also offer contractual services, rental services, and expertise-manpower services. We give a perfect blend of machinery manufacturers along with equipment services. Thereby, offering solutions with a stark difference as compared to our competitors.

Q-3. What are the long-term strategic goals for Minimac Systems in the sustainable lubrication sector, and how do you plan to adapt to evolving market demands and technological advancements?

Ans. With the advancement of technology and various concepts surrounding IIOT and Industry 4.0, Lubricant Storage is no more considered as a consumable but as an asset to the industry instead. With the advancements in lubrication technology, the lifecycle management of lubricants also becomes important.

Today there are several lubricants whose lifespan is designed for multiple years 10 or 20 years to be precise. The lifetime of such lubricants can only be realized only if better usage methods are inculcated and the lubricants are kept clean of any contamination or foreign material. Hence, there is an increase in the challenges around

lubricant solutioning. At the same time, lubricant monitoring, has started gaining foreseen importance and thus IIoT techniques which will enable AI and ML-driven approaches for condition monitoring in the lubricant sector are picking up a fast pace.

The increasing sophistication of machinery necessitates advancements in lubricant management practices. To maximize efficiency and optimize equipment performance, lubricants must be stored in meticulously clean environments. Recognizing this critical factor, Minimac System is dedicated to developing innovative products and technologies that will meet the evolving demands of future lubrication management.

Minimac Systems has a 10-year goal plan through which we are introducing lubricant services and integrating them with basic operations and maintenance of various clients. Over the years, we aim to launch lubricant as a service concept of business models where lubricants will be selected, filled, managed, and disposed of by a service provider instead of the plant operator. This will enable complete lifecycle management of the lubricant, thereby ensuring the best performance during its lifecycle as well as the most sufficient and environment-friendly disposal or recycling of the hazardous element that is the

lubricant.

Q-4. How is Minimac Systems responding to the growing trend of digitalization and smart technologies in the lubrication solutions industry, particularly in the context of sustainability?

Ans. With the advancement of lubricated machinery and lubricant chemistry, it is becoming essential and inevitable to have smart condition monitoring techniques for the lubricants. For this reason, Minimac has launched IIOT-based sensor technologies which are AI-enabled and provide a single view dashboard for the users of lubricated machinery.

This will enable real-time monitoring of the lubricant condition, provide alert systems and show an online, single-view dashboard for various stakeholders with regards to lubricant management. This customizable dashboard can be integrated onto users' mobiles, tablets, laptops and desktops.

IIoT based oil condition monitoring system will also give insights into various action plans if there is a deviation or deterioration in the lubricant quality. This will bring forth much more efficient methods of total productive maintenance and extract the best efficiency of the lubricants.