

July - August 2024

# Machinery Lubrication

INDIA

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MITIGATE RISK & ISSUES WITH THE RIGHT

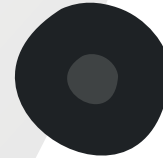
## LUBRICANT CHANGE PROGRAM



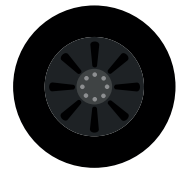
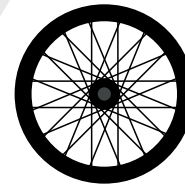
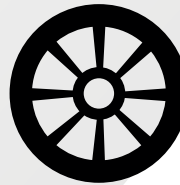
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Dec. 9 - 11, 2024, Online**

**3**

**Machine Lubricant Analyst - II (MLA - II)  
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# Publisher's Note



**W**atching Team India's journey in the T20 World Cup was a rollercoaster of emotions, filled with moments that taught us invaluable lessons about life & leadership. A proactive mindset, combined with predictive techniques, ensures that machinery remains in peak condition, reducing downtime and maintenance costs.

In the ever-evolving landscape of industrial maintenance, machinery lubrication remains a cornerstone of reliability and efficiency. Recent trends highlight the growing importance of innovative practices and sustainable solutions in lubrication programs. This edition of our magazine brings together insights and practical advice to help professionals navigate these advancements and optimize their operations. Innovation is a driving force reshaping the field of machinery lubrication. Advanced lubricant formulations and cutting-edge maintenance tools are crucial. By identifying problems before they escalate, predictive maintenance helps reduce unplanned downtime and extend the lifespan of machinery components.

Another significant shift in the industry is the increasing emphasis on sustainability. These lubricants not only reduce environmental impact but also enhance machinery performance by providing superior protection and longer service intervals. Embracing sustainable lubricants is a proactive step towards a greener future and a more efficient operation.

While OEM-recommended lubricants provide a reliable starting point, they may not always be the best choice for every application. Tailoring lubricant selection to the unique demands of your machinery can lead to better performance and reduced maintenance costs.

Implementing a world-class lubrication program also involves overcoming several challenges. Ensuring that storage containers like drums and totes remain free of contaminants is essential for maintaining the integrity of lubricants. Contaminants can significantly reduce the effectiveness of lubricants, leading to increased wear and tear on machinery.

The role of lubrication in specialized industries cannot be overstated. Sectors like aerospace, automotive, and food processing have unique requirements that demand specialized lubrication solutions. By addressing these specific needs, companies can achieve higher levels of operational efficiency and compliance with industry standards.

As we look towards the future, the integration of proactive maintenance strategies will continue to gain importance. Using tools like the Ascend Chart, professionals can implement systematic approaches to maintenance that prevent issues before they arise.

Another vital aspect of a successful lubrication program is the strategic timing of lubricant changes. An effective lubricant-

change program minimizes risks and prevents potential issues, ensuring that machinery operates smoothly and efficiently. Life, much like a cricket match, mirrors the ebb and flow of triumphs and setbacks. In the world of machinery lubrication, where precision and reliability are paramount, the journey often parallels this analogy.

Here's to embracing every challenge with grace and resilience, from machinery lubrication to navigating the complexities of our field. Together, let's make every moment count and continually strive for excellence in our industrial endeavors.

We look forward to your support and feedback to enable us to improve the content and layout of Machinery Lubrication India. We welcome readers to participate by sending their feedback & contributing articles and case studies. We look forward to the continued patronage of the advertisers and the subscribers.

Thank you for being a part of this journey towards a more sustainable and efficient future.

Warm regards,  
Udey Dhir





## ***COLLABORATION AND INNOVATION:*** THE KEYS TO ELIMINATING UNPLANNED DOWNTIME



It's been estimated that, globally, unplanned downtime costs companies millions in lost production hours and more than \$800 billion in lost revenue. These major costs in productivity can mostly be attributed to incorrect and inadequate greasing of machinery. Before diving into solutions, it's important to know just what downtime is and the potential issues it can create.

Downtime in maintenance and reliability refers to the period of time when a machine, equipment, or an entire system is not operational or available for its intended use due to planned maintenance, unplanned breakdowns, repairs, or other reasons. Downtime is a critical concept in these fields because it represents a loss of productivity, efficiency, and often revenue for an organization.

### **There are two main types of downtime:**

**1. Planned Downtime :** This downtime is scheduled in advance to perform routine maintenance, inspections, upgrades, or repairs on equipment. It is a proactive approach to ensure the continued reliability and performance of assets. During planned downtime, the goal is to minimize disruption to the overall operations and to complete the



necessary maintenance as efficiently as possible.

**2. Unplanned Downtime :** This type of downtime occurs unexpectedly when equipment or systems fail, often due to unexpected breakdowns, malfunctions, or other issues. Unplanned downtime is costly and disruptive, as it can lead to lost production, increased maintenance costs, and potential damage to an organization's reputation.

Reducing or minimizing downtime is a key focus in maintenance and reliability man-

agement. Effective strategies and practices, such as predictive maintenance, preventive maintenance, condition monitoring, and reliability-centered maintenance, are implemented to maximize the availability and performance of assets while minimizing unplanned downtime. Minimizing downtime helps organizations maintain productivity, reduce costs, and improve overall operational efficiency.

I co-founded GreaseBoss to help eliminate unplanned downtime. The owners, managers, and operators across the various indus-

tries around the world I've talked to face this very challenge, 24/7. Although every business is confronted with different challenges, I believe the solutions are almost always the same: collaboration and innovation.

It was through collaboration and innovation that we enabled a tier-1 mining giant, eliminating the risk of the reoccurrence of a \$30 million failure at one of their mines in Australia. They came to us after a minor, undetectable equipment failure in their automated lubrication system led to a catastrophic failure of one of the operation's critical conveyors, halting mining production.

We responded to this request for help through collaboration and innovation. Here's how we safeguarded this critical equipment and how we continue, through partnerships, to ensure these catastrophic failures don't happen again.

### Collaboration Is Critical

Our first task was to identify the core issue for these major failures and breakdowns in machinery. In this case it was established that it was just one lubrication point that was responsible for this catastrophic failure. A minor, undetectable component failure in one of the injectors blocked the grease line and starved the bearing of grease. The mine was facing an issue that we see time and time again across industries globally.

We were able to identify the failure and, in turn, provide a resolution to the issues through close collaboration with the mine. Through joint problem solving and technical works we



*Endpoint on Apron Feeder. One major point of failure eradicated by a simple but powerful advance-warning system.*

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integrated our Endpoint system to their lubrication points. Once initiated, we then went through three phases of field pilot prototypes to refine the product to final commercial readiness.

In short, Endpoint provided technology that gave the mine assurance that all is well with the lubrication of their machinery. Happy days. If something wasn't right, the GreaseBoss system would flag it immediately and point to the specific source and location of the problem.

The collaboration continues. After successful launch and integration in the field, we are now working with the mine to integrate the data to display on their own operational SCADA system to form part of the day-to-day monitoring of the plant.

the common connectivity protocols used in heavy industry.

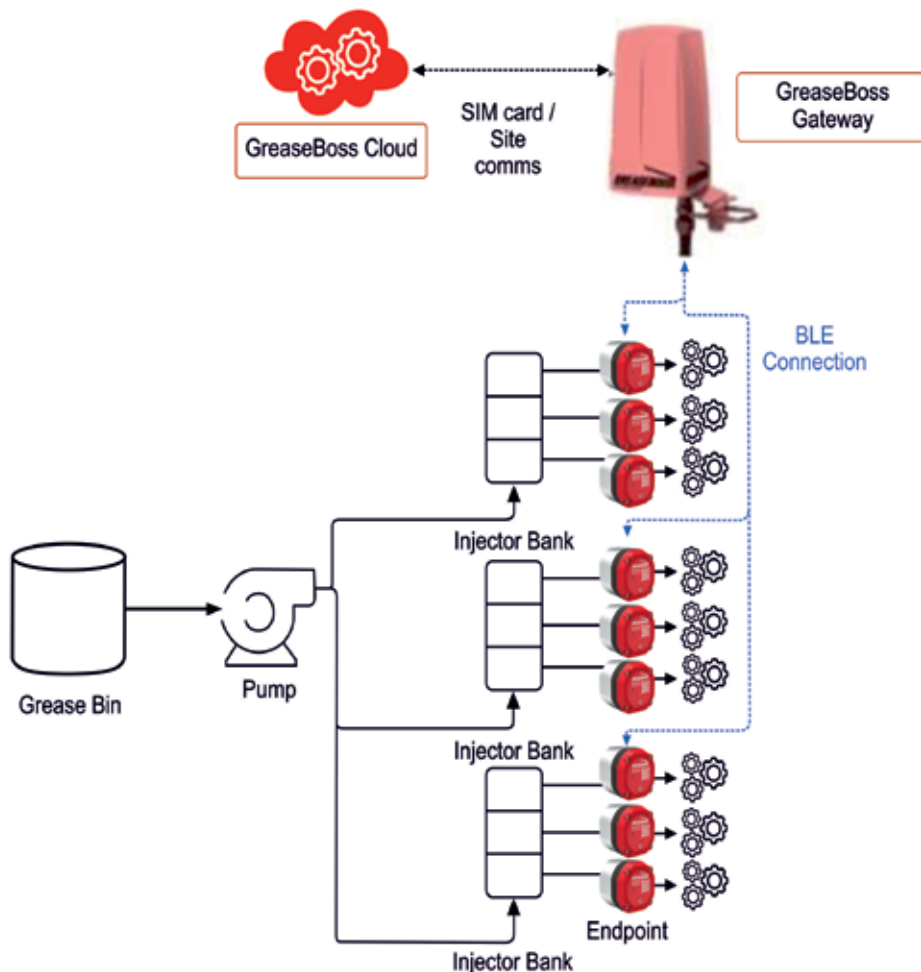
All of the data was fed into and aligned with the mine's own systems through the API, which enabled both our respective teams to get data-driven insights on the mechanical breakdown issues, along with feedback on the types of grease being used and how it was performing.

### Collaborate, Innovate, Replicate

After the 10-month pilot, we sat down with the mine's managers and operators to review and reflect on our learnings. We collaborated on making adaptations to the original pilot and then, just as importantly, brought in additional innovations to improve and enhance the greasing processes. Through the innovation and collaboration at the original site, alongside the replication and extension to other parts of the mine, to date more than \$30 million in lost productivity and labor costs caused by the unplanned downtime have been eliminated.

This could not have been achieved if we had not been able to actively collaborate with the operators and managers on-site. It's crucial for solutions providers like GreaseBoss to be viewed as a partner and not a supplier. I know that requires a level of trust that is not always easy to attain, however, by placing trust in our people, we were able to get the insights from the mine's own systems and data. This, in turn, allowed innovation to thrive and develop.

Collaboration and innovation has made a material and financial impact at one site running to millions of dollars. However, I passionately believe collaboration and innovation will impact the smallest operation just as significantly as it would the biggest. It all starts with your mindset and attitude.



### Innovation in Action

We took our innovative, cloud-based solution to analyze the exact volume of grease being delivered each pump cycle to every critical bearing on the conveyor. By automatically monitoring planned vs actual greasing on these critical bearings, we were able to develop insightful reports and alarming systems.

Designed to work in harsh environments, Endpoint uses world-leading flowmeter design to measure and verify the flow of grease as it enters the machine. This data is automatically transmitted to the GreaseBoss Gateway, which has the versatility to work with many of



MITIGATE RISK & ISSUES WITH THE RIGHT

# LUBRICANT CHANGE PROGRAM





Under pressure to be more competitive, companies make strategic decisions to change their lubricant supplier. Better products, services, and lower costs are the incentives for the change.

However, the idea of changing a lubricant supplier, especially after staying with the current supplier for a long time, can be daunting. Besides the high switching costs, the uncertainty over its impact in the short term can put off many opportunities that can be gained from a new supplier.

Understanding the risks and potential issues with changing lubricants can alleviate these concerns. The risks can be categorized as performance, compatibility, and application. Mitigating these risks will ensure a successful and seamless changeover process.

### Performance Risk

One of the key risks of changing lubricants is the quality and performance of the new oil. The new lubricant could be inferior and has weaknesses compared to the current lubricant, which can lead to reliability issues. You want the new oil to have at least the same or better performance than the current oil.

The first step of managing this risk is to review your equipment lubricant requirements and establish a baseline or minimum performance. First reference must always be OEM specifications. You must also consider operating conditions such as load, temperature, speed, materials, and duty cycle of lubricating components in your machines. You can then match those requirements with the new oil supplier product offerings.

Most companies choose the easier way by getting equivalents to the current lubricants rather than reviewing the machine requirements. Although quicker, this is not advisable. This practice assumes that the current product is the right lubricant for the ma-

chine. Sometimes this is not the case. Also, the matching lubricant may not necessarily be a direct equivalent in terms of specification and formulation. Reviewing lubricant machine requirements can avoid any potential mistakes or using less than optimal lubricant.

Besides convenience, companies prefer to go on the product equivalence route because they do not have good records of machine lubricant specifications and operational requirements. All they have is a historical purchase record. Conducting a review of the lubrication requirements is an opportunity to establish a master reference of what your assets need.

Oil suppliers can claim that their oil is approved under certain industry bodies or OEM standards. As the end user, you should verify this directly with the standard issuing organization or the OEM.

There are occasions when the new supplier lubricants cannot be verified against the standards they claimed. This is because some industry bodies and OEMs do not issue approvals to specific brands. Their standards are meant to be adhered to by lubricant manufacturers, and the onus is on them to prove that their products meet the standards.

When standards cannot be verified, you may have to rely on the credibility of the oil supplier. Is there a justification to trust them? What information and track record do you know about them and their products? Is there any reference customer for whom you can get the information? Is there performance data on the successful use of new lubricant in similar machines and conditions?

In the absence of the above, you will need to evaluate the lubricant quality and performance through product testing. Commercial laboratories can perform standard tests such as viscosity, metal elements, AN/BN, and particle count. The readings can give you a

basic idea of the typical properties and composition of the new lubricant.

However, to truly know its performance, advanced tests are required. This means you need access to specialized testing labs. Often times, costs and time prohibit most companies from doing this.

Alternatively, you can conduct a product trial in your plant. Choose the least critical machines and run the new lubricant over a pre-determined period. Monitor machine and oil conditions via oil analysis.

It is worth while to shorten the sampling intervals for early detection of abnormalities. Should the trial on the least critical machines show promising results, you can increase to more machines and more critical ones.

### Compatibility Risk

The new lubricants could be incompatible with the previous ones when mixed in a storage tank, potentially resulting in poor lubricant performance and other associated reliability issues. Mitigating this risk requires a compatibility assessment between new and current oils based on understanding their oil type, base oil, additive, and thickener (for grease) composition.

There are general rules of thumb to determine compatibility between products. Starting with the base oil, synthetics such as PAO and diesters are generally compatible with mineral oils. PAG, however, does not.

For engine oils, mixability between the same API classification and SAE viscosity grade shouldn't be an issue. For other oils, incompatibility is often due to mixing acidic and alkaline additive technologies together.

Mixing these two types will cancel each other. As a result, solid substances will form, changing the oil's physical and chemical properties. This is likely to occur if mixing different oil types, for example, engine oil

and turbine oil.

Although it is not common to purposely mix different oil types, incompatibility still can happen for similar types, such as mixing zinc-based and non-zinc hydraulic oils. Check with your oil supplier to identify their products fall under acidic and alkaline additive technologies.

As for grease, thickener compatibility is the most crucial. Grease NLGI consistency will be affected when incompatible soap thickeners come into contact.

With many different thickeners out there, a grease compatibility table should be referenced.

is taking place during service.

Some of the follow-up tests recommended are Kinematic viscosity at 40 degC (ASTM D445), Acid number (ASTM D664 or D974), foaming characteristics (ASTM D892), air release properties (ASTM D3427), water separability (ASTMD1401) and rotating pressure vessel oxidation test (ASTM D2272).

If any of the new lubricants are to be incompatible, steps need to be taken to minimize contact with the current lubricants during transition. Airtight lubricants change-out procedures must be in place to eliminate any possibility of mixing incompatible fluids whenever practical. For example, storage tanks and machine compartments need to be flushed and cleaned before filling in with the new lubricants.

### Application Risk

Application risk involves maintenance staff applying the wrong oil due to unfamiliarity with the new lubricant naming and packaging. This mistake can be catastrophic.

A proper management of change process is key to managing the transition. One person should be assigned as the overall champion or project manager to handle the change process from start to finish. Involve the oil supplier and all stakeholders within your plant to get their input. We do not want to have change-over issues by an oversight.

Communication is paramount. All users, especially personnel who receive, store, transfer, and fill lubricants into machines, should be made aware of the changes. Easy-to-understand procedures and instructions will greatly help make the changeover seamless.

One important tool is a cross-reference chart. It shows the current and new lubricants side by side and the machine compartment they should go into. To avoid confusion, it is preferable that the project manager goes through the chart with the relevant staff to ensure everyone understands.

Legend:	Aluminum Complex	Barium	Calcium	Calcium 12-Hydroxy	Calcium Complex	Clay	Lithium	Lithium 12-Hydroxy	Lithium Complex	Polyurea*	Sodium	Calcium Sulphonate	Silica
● Compatible													
▲ Borderline Compatible													
■ Incompatible													
Aluminum Complex	—	■	■	●	■	■	■	■	●	■	■	■	●
Barium	■	—	■	●	■	■	■	■	■	■	■	▲	●
Calcium	■	■	—	●	■	●	●	▲	●	■	■	N/A	N/A
Calcium 12-Hydroxy	●	●	●	—	▲	●	●	●	●	■	■	N/A	N/A
Calcium Complex	■	■	■	▲	—	■	■	■	●	●	■	●	■
Clay (Bentone)	■	■	●	●	■	—	■	■	■	■	■	■	●
Lithium	■	■	●	●	■	■	—	●	●	■	■	●	●
Lithium 12-Hydroxy	■	■	▲	●	■	■	■	—	●	■	■	●	N/A
Lithium Complex	●	■	●	●	●	■	●	●	—	■	■	●	●
Polyurea*	■	■	■	■	●	■	■	■	■	*	■	■	■
Sodium	■	■	■	■	■	■	■	■	■	■	—	■	■
Calcium Sulphonate	■	▲	N/A	N/A	●	■	●	●	●	■	■	—	N/A
Silica	●	●	N/A	N/A	■	●	●	N/A	●	■	■	N/A	—

\*not all polyurea greases are mutually compatible

Table 1: Grease Compatibility Chart (Source: Machinery Lubrication)

This is presented in Table 1:

You can also determine compatibility based on the OEM and industry specification. Certain specifications stipulated that oils must pass compatibility with different additive types of the same or related specifications. API and Caterpillar TO-4 are examples of specifications that allow mixability between oils within the same specification.

If unsure or sufficient information cannot be provided by your oil supplier, it is best to assume they are incompatible. This warrants compatibility tests to determine that the two oils combined will not undergo properties and performance changes, leading to them becoming inferior to the individual oils.

Mix the new and current virgin oils in three ratios, 90:10, 50:50 and 10:90, to simulate different mixing conditions. Heat the mixtures to 65° C continuously for seven days while observing any change in appearance and sediment fallout. A clear indicator of incompatibility is deposit formation that will plug filters and hinder oil flow.

The absence of changes in the appearance does not mean the oils are 100% compatible. Critical machines such as turbines will require further tests to ensure no performance degradation

This allows questions to be asked and addressed earlier rather than later. The cross-reference chart must also be accessible and clearly displayed in areas where lubricants are filled whenever practical.

The lubricant storage area and all dispensing and filling points must be clearly labelled with the new lubricant's name alongside the old lubricants that are being replaced. Once the transition is over, the old lubricant label should be totally removed from the plant. Maintenance documents, such as the service sheet, will need to be updated with new oils as old ones are discarded.

During the transition period, you will have to stock both old and new lubricants at the same time. All old lubricant packaging and

containers need to be marked for depletion and stop order once finished. Here, 'First In, First Out (FIFO)' must strictly be in place. We do not want to find unopened or unused packaging of old oil in the plant midway through the transition when all the machines are already filled with the new oil.

Even worse, someone unintentionally re-orders the old lubricant when change is underway, thinking it is low in stock. This is a common mistake and can easily happen in your plant without the adequate training on proper lubricant replacement.

If you have an oil-analysis program in place, the laboratory needs to be informed of the change. Oil properties, additive composition, and concentration may be slightly dif-

ferent. This could cause a false alarm when the readings turn out differently from the old oil's reference.

For example, some engine oils use contains more magnesium concentration as a detergent than others. This can be mitigated by supplying the new oil sample to the lab for testing and recording the readings as a new reference.

When these three risks are managed properly, companies will find minimal disruption to their operations during a lubricant change. Although there may be teething problems, the long-term benefits of having better and improved lubricant quality, performance, and service far outweigh all the potential hurdles.



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# REVOLUTIONIZE YOUR OPERATIONS WITH TOTAL FLUID MANAGEMENT



In the dynamic world of industrial operations, effective lubrication management plays a pivotal role in ensuring machinery health, operational efficiency, and environmental responsibility. Often seen as a simple task of adding oil, its significance goes far beyond mere replenishment. It demands a comprehensive approach, integrating advanced practices and technologies, along with a proactive mindset, to unlock its full potential.

## Understanding the Complexity of Lubrication Management

Lubrication management is a multifaceted process that extends beyond just topping up oil levels. It involves careful consideration at every step, from selecting the right lubricant to its responsible disposal, each contributing significantly to the health and longevity of machinery and assets.

**1. Selecting the Right Lubricant:** Choosing the appropriate lubricant requires more than following manufacturer recommendations. Environmental conditions, operational needs, and budget constraints must be taken

into account. Prioritizing machinery requirements ensures optimal performance and longevity, even beyond warranty periods.

**2. Ensuring Proper Reception, Storage, and Movement:** Maintaining the integrity of lubricants through proper reception, storage, and movement is crucial. Inadequate storage conditions can lead to oil degradation and inadvertent use of incorrect lubricants. Implementing ventilation in storage areas, rigorous product checks, and color-coding oils for easy identification mitigates risks and ensures smooth operations.

**3. Transitioning to Condition-Based Change:** Moving from time-based to condition-based oil changes marks a significant advancement. Real-time digital data collection allows proactive identification of potential issues, minimizing costly downtime. Embracing this shift optimizes lubrication practices, enhancing machinery reliability akin to regular health check-ups for humans.

**4. Reclaiming Oil through Filtration and Monitoring:** Regular oil filtration and advanced monitoring techniques are vital for maintaining machinery performance. Investing in filtration systems and online monitoring tools enables proactive identification of contaminants, minimizing the risk of failures. Reclaiming oil through filtration reduces waste and enhances efficiency.

**5. Responsible Disposal and Environmental Stewardship:** Proper disposal of used oil is essential in today's environmentally conscious era. Adhering to regulatory require-

ments ensures environmental sustainability and reflects an organization's commitment to ethical practices.

## Success Stories: Achieving Excellence in Lubrication Management

Significant achievements, such as a 70% reduction in hydraulic oil consumption, are attainable through proactive approaches and advanced technologies. For instance, at a leading two-wheeler manufacturing company, a transformative initiative led to substantial oil consumption reduction. Swift identification of leakages, comprehensive reporting, and innovative filtration processes were instrumental in preserving resources and enhancing efficiency.

## Embracing Change for Sustainable Success

Implementing world-class lubrication practices requires a culture of continuous improvement and a readiness to embrace change. Collaboration with cross-functional teams or engaging lubrication specialists drives innovation and adherence to best-in-class standards, ensuring sustained success in the evolving industrial landscape.

In conclusion, advancing lubrication management from basic topping up to world-class practices demands a holistic approach. By integrating advanced practices and technologies and upholding environmental stewardship, organizations optimize machinery performance, prolong asset lifespan, and ensure sustained success in today's dynamic industrial environment.

# MOLYGRAPH

LUBRICANTS



**Conquer Every Challenge with  
Molygraph Lubricants - Unmatched  
Efficiency for All Industries**



## **SUSTAINABILITY AND ECO-FRIENDLY LUBRICANTS: A NEW FRONTIER IN LUBRICATION PROGRAMS**



In the world of industrial operations, where machinery and equipment are the lifeblood of productivity, the use of lubricants is paramount. These substances are essential for reducing friction, heat, and wear and tear on mechanical components. However, the traditional lubricants that have been the workhorse of industry for decades often come at a significant environmental cost. This has led to a growing trend in the adoption of sustainable and eco-friendly lubricants, as companies seek to minimize their ecological footprint while maintaining the efficiency and reliability of their machinery.

### **The Environmental Imperative**

The industrial sector has historically been a significant contributor to environmental degradation. The reliance on conventional lubricants, often derived from non-renewable fossil fuels, has contributed to pollution, resource depletion, and habitat destruction. As the world becomes more environmentally conscious and regulations tighten, industries are compelled to reevaluate their practices and invest in eco-friendly alternatives.

### **Benefits of Sustainable Lubricants**

**1. Reduced Environmental Impact:** Sustainable lubricants, often derived from renewable sources like vegetable oils, offer a significant reduction in carbon footprint compared to their petroleum-based counterparts. They biodegrade more readily, reducing the risk of



- soil and water contamination.
- 2. Improved Workplace Safety :** Eco-friendly lubricants are often less toxic and pose fewer health hazards to workers. This not only enhances safety but also reduces the need for costly safety measures and protective equipment.
  - 3. Regulatory Compliance :** Governments and environmental agencies worldwide are tightening regulations on industrial operations to limit their impact on the environment. Companies that embrace sustainable lubricants can stay ahead of these regulations, avoiding potential fines and legal issues.
  - 4. Extended Equipment Life :** Sustainable lubricants typically have superior lubrication properties, resulting in reduced friction and wear on machinery.

This leads to longer equipment lifespan and reduced maintenance costs.

- 5. Energy Efficiency :** Some eco-friendly lubricants have been engineered to improve energy efficiency, which can lead to substantial cost savings overtime.

### **Types of Sustainable Lubricants**

Several types of eco-friendly lubricants are gaining popularity in the industrial sector:

#### **Vegetable-Based Lubricants**

These lubricants are derived from renewable sources like soybean oil, canola oil, and sunflower oil. They are biodegradable and offer excellent lubricating properties. Vegetable-based lubricants are often used in environmentally sensitive areas, such as agriculture and forestry equipment.



### Bio-Based Synthetic Lubricants

Bio-based synthetic lubricants are engineered from renewable feedstocks but are designed to provide performance similar to traditional synthetic lubricants. They offer a balance between sustainability and high-performance lubrication.

### Water-Based Lubricants

Water-based lubricants are another sustainable option. They are used in various applications, including metal working and machining. These lubricants are environmentally friendly, as they are easy to filter and recycle.

### Solid Lubricants

Solid lubricants, such as graphite and molybdenum disulfide, reduce friction by forming a protective film on metal surfaces. These lubricants are often used in high-temperature and high-pressure environments and offer long-lasting lubrication.

### Case Studies of Eco-Friendly Lubrication Success Interface, Inc.

Interface, a global leader in modular flooring, embarked on a mission to become a carbon-neutral company by 2020. Part of this journey involved implementing sustainable practices throughout their operations, including the use of eco-friendly lubricants. By switching to vegetable-based lubricants in their manufacturing processes, Interface reduced its environmental impact significantly. The company's commitment to sustainability not only aligned with its brand values but also attracted environmentally conscious customers, contributing to its long-term success.

### The Port of Los Angeles

As one of the busiest ports in the United States, the Port of Los Angeles faced increasing pressure to reduce its environmental impact. In response, they began using water-based lubricants for their cranes and cargo-handling equipment. This switch not only helped the port comply with stringent emissions regulations but also resulted in smoother and more efficient operations. The initiative served as a model for other major ports worldwide looking to balance productivity with environmental responsibility.

### SKF Group

SKF Group, a leading manufacturer of bearings and seals, recognized the importance of sustainable lubrication in their products. They developed a range of bio-based lubricants for their bearings, designed to reduce friction and energy consumption while extending the life of their products. This innovation not only appealed to environmentally conscious customers but also helped SKF differentiate itself in a competitive market.

## Implementing Sustainable Lubrication Practices

Transitioning to sustainable lubrication practices requires careful planning and consideration. Here are some key steps to get started:

- 1. Conduct a Lubrication Audit :** Evaluate your current lubrication practices and identify areas where eco-friendly alternatives can be implemented. Consider the specific needs of your equipment and machinery.
- 2. Choose the Right Sustainable Lubricant :** Select lubricants that align with your sustainability goals and are suitable for your equipment. Consult with lubricant suppliers who specialize in eco-friendly options for guidance.
- 3. Train Your Workforce :** Ensure that your employees understand the importance of sustainable lubrication practices and are trained in their proper use and disposal.
- 4. Monitor and Measure :** Regularly monitor the performance of your lubricants and measure their impact on equipment lifespan, energy efficiency, and environmental footprint.
- 5. Collaborate with Suppliers :** Work closely with lubricant suppliers to stay updated on the latest advancements in sustainable lubrication technology. They can provide valuable insights and support in achieving your sustainability objectives.

## Conclusion

Sustainability and eco-friendly lubricants represent a new frontier in lubrication programs for industries worldwide. As the environmental imperative continues to grow, adopting sustainable lubrication practices is not only a responsible choice but also a smart business decision. The benefits are clear: reduced environmental impact, improved workplace safety, regulatory compliance, extended equipment life, and potential cost savings. By following the examples of companies like SKF Group, businesses can pave the way for a more sustainable and prosperous future while maintaining operational excellence. Embracing eco-friendly lubrication is not just a trend; it's a necessity for a greener, more sustainable world.



# THE NEW NORMAL



The term “the new normal” has been used countless times over the last several years. In the workplace, this has included

analyzing many business principles and changing organizations to allow such things as working from home, having a social impact on your work, and focusing on mental health. These items are good, and some industries have more latitude to make changes than others. In our realm, the new normal is still very much the same business as usual. Components fail, production lines go down, and reactive maintenance is still the norm in too many facilities. This leads to an environment where workers can become desensitized to failure and begin to accept that little can be done to address them, let alone improve the daily grind by breaking this cycle.

This is further compounded by the lack of skilled professionals being able to back fill openings that, in some cases, have gone unfilled for years. Recently, I was in a facility that has been trying to hire multiple mechanics and operators just to get their staffing levels up to pre-2020 levels. It is the same song, different verse in many plants where head count reductions or vacant openings have left the remaining employees doing more with less. Over the past several decades, there has been a “leaning” down of organizations where head count has been replaced with efficiency and tools to make the workforce more effective. This is a good effort but



still requires skilled professionals to operate and sustain the facility.

## Economic Shifts and the Need for Efficiency

If anything, the need for improved processes and skilled people will only escalate. Goldman Sachs released a statement saying that the economy is returning to a pre-2008 environment (US Economy, Markets to Return to Pre-2008 Conditions in 2024: Goldman Sachs). Recent legislation, such as the Inflation Reduction Act, has spurred a new level of investment into many businesses, including pharmaceuticals and those critical to infrastructure. All signs point to a future where it isn't necessarily sustaining the current pro-

duction but increasing it significantly. With organizations still hesitant to increase headcount, the compass points even more to empowering our staff and looking towards options to help improve efficiency and reduce downtime in every place possible.

Analyzing the work is one of the first places to look for improvements.

## The True Cost of Poor-Quality Work

When we perform lubrication assessments, we often find areas where work is unnecessarily performed. For instance, it is common to find greasing activities performed far more frequently than needed. This is costly in





terms of manpower and consumables — which are great savings areas and allow us to reallocate that manpower to other places where work isn't getting performed. The work analysis could begin with a review of all current PMs and simply look at the task frequency. From there, it gets more granular in ensuring the work being performed addresses known root causes of failure and is impactful enough to perform. This serves as the basis of a PM optimization process and is a way to uncover hidden manpower.

Adding staff can be a difficult task. Attracting talent has become a vast industry, with many companies employing recruiting agencies to help replenish headcount and fill jobs that have been vacant for a while. There are several ways to attract talent, but maintenance jobs are often viewed as “dead-end” or “dangerous” work. People want to know their work is valued, and what better role could someone have that makes a real difference in a company's profitability than in maintenance or reliability? Taking this a step further, utilizing newer tools such as tablets or laptops with the latest maintenance software can attract younger professionals who may not realize how technological a job in this field can be. Utilizing tools and platforms that allow you to look into the inside of the machine to know what is wrong with it is a powerful motivator to get people to join your staff.

### Proactive Maintenance Best Practices

Utilizing that same approach with onboarding can help break old habits as well. Instead of simply relying on a shadowing period, using technology to help people ramp up in capability can significantly increase productivity and minimize issues of poor-quality work. We designed our lubrication management system to help on board new lubrication technicians and enable them to perform the tasks correctly from the beginning. A cost associated with performing work incorrectly goes beyond wasting consumables or spending more time than is necessary.

Ultimately, the machines pay this price as improper lubrication continues to be one of the leading causes of equipment failure and unplanned downtime. In this case, we must do better than return to the

status quo. Now is the time to improve your processes.



### Breaking Old Habits : The Path to the “New Normal”

I believe the “new normal” should rigorously follow the proactive maintenance best practices. If we could just focus on five main things: keep the machine and lubricant clean, cool, and dry, and make sure the machine is aligned and balanced, our machines would run better, last longer, and we would start to find capacity where we originally were tapped out. Proactive maintenance requires diligence and all staff being on the same page because even just a single person doing something incorrectly can unravel all the work done by others. Education, awareness, and focus must be front and center with this approach.

This is nothing novel, but many don't know where to begin on this journey. Sticking with lubrication, a great place to start is lubricant consolidation. This helps make sure we don't have unnecessary lubricants on hand. The most visible place to make changes is in the lube room. This is the heartbeat of any lubrication program, and this room should be the cleanest area in the plant. Everything should have a place, and effort must be given to keep it in order. With PM optimization, a detailed review of the equipment can help ensure we are doing the correct work and using the correct products. The enemy of these improvement efforts is complacency and competing priorities. Let's break the “this is the way we have always done it” and make the “new normal” doing the work the right way, the first time, every time.





**Mr. Ajay Shah,**  
Managing Director, Molygraph Lubricants

*Has an impressive 46-year career in the specialty lubricants and maintenance resources sector. With profound expertise and exceptional problem-solving skills, Mr. Ajay has earned a reputation as a trusted advisor to customers. His visionary leadership has been instrumental in establishing Molygraph Lubricants as a hallmark of quality and reliability in the industry. Under his guidance, the company has expanded its market presence and developed world-class facilities, positioning it for sustained growth and success. His commitment to excellence and innovative thinking continually raises industry standards, inspiring the Molygraph team to deliver exceptional solutions.*

**“What truly sets Molygraph apart is our relentless focus on innovation and quality. We invest heavily in research and development to create products that offer superior performance and meet the stringent demands of modern machinery.”**

With operations primarily in the Automotive and Industrial segments and a leading presence in the open market through a stellar distributor network, Molygraph Lubricants supplies directly to OEMs and other B2B customers. Molygraph Lubricants is an established player in the Indian Lubricants Industry, known for its commitment to quality and innovation. In an interview with Machinery Lubrication India, Ajay Shah, Managing Director, Molygraph Lubricants, talks about his remarkable journey in the specialty lubricants and maintenance resources field. His deep expertise and problem-solving skills have made him a trusted advisor to customers, and his visionary leadership has played a pivotal role in establishing Molygraph Lubricants as a symbol of quality and reliability. From expanding market presence to creating world-class facilities, Mr. Ajay's commitment to excellence and forward-thinking approach has positioned Molygraph for sustained growth and success.

### Can you tell us about Molygraph Lubricants and its mission?

**Ajay Shah:** Absolutely. Molygraph Lubricants is a leading innovator in the lubricant industry, committed to delivering high-performance solutions that meet the evolving needs of our customers. Our mission is to enhance the efficiency and reliability of machinery across various sectors by providing top-notch lubrication products. We are dedicated to continuous improvement, sustainability, and leveraging advanced technology to stay ahead in the market.

### What sets Molygraph apart from other lubricant manufacturers in terms of innovation and product development?

**Ajay Shah:** What truly sets Molygraph apart is our relentless focus on innovation and quality. We invest heavily in research and development to create products that offer superior performance and meet the stringent demands of modern machinery. Our team of experts is constantly exploring new formulations and technologies to improve lubrication efficiency, reduce maintenance costs, and extend the life of equipment. Additionally, our customer-centric approach ensures that we customize our solutions to specific needs, providing unmatched support and service.

### Can you elaborate on Molygraph's R&D capabilities and how they contribute to maintaining your competitive edge in the market?

**Ajay Shah:** Our R&D capabilities are one of our core strengths. We have a state-of-the-art research facility equipped with the latest technology and a team of highly skilled scientists and engineers. This allows us to conduct extensive testing and development to refine our products continuously. By staying

ahead of industry trends and regulatory requirements, we ensure that our lubricants are not only effective but also environmentally friendly. Our commitment to innovation keeps us competitive and enables us to offer cutting-edge solutions to our clients.

### How does Molygraph ensure the highest quality standards in its products, and what certifications do you adhere to?

**Ajay Shah:** Quality is at the heart of everything we do at Molygraph. Molygraph adheres to several internationally recognized certifications that underscore our commitment to quality, environmental responsibility, and occupational health and safety:

**ISO 9001:** Ensures our quality management systems meet the highest international standards.

**ISO 14001:** Demonstrates our commitment to effective environmental management and sustainability practices.

**ISO 45001:** Focuses on maintaining robust occupational health and safety standards.

Our QC lab is outfitted with the latest testing instruments and follows strict procedures at every stage, from raw materials to finished goods, to ensure adherence to stringent quality protocols.

### Can you discuss your key markets, recent expansions, or partnerships, and how these have impacted your market presence?

**Ajay Shah:** Molygraph serves a diverse range of markets, including automotive, industrial, and heavy machinery sectors. Recently, we have expanded our presence in Southeast Asia and the Middle East, which has significantly boosted our market share. We've also

forged strategic partnerships with leading OEMs and industry players to enhance our product offerings and reach. These expansions and collaborations have not only increased our market presence but also enabled us to bring innovative solutions to a broader audience.

### Can you share a bit about your journey and leadership approach at Molygraph?

**Ajay Shah:** My journey with Molygraph has been incredibly rewarding, having dedicated over 40 years to the company. I believe in a hands-on leadership approach, promoting a culture of innovation and continuous improvement. I encourage open communication and collaboration within the team, which has been instrumental in driving our success. By staying connected with our customers and understanding their needs, I ensure that Molygraph remains agile and responsive in a rapidly changing industry. Our commitment to excellence and customer satisfaction is what drives me and the entire Molygraph team.

### What are the future plans for Molygraph Lubricants?

**Ajay Shah:** Looking ahead, we aim to further expand our global footprint, especially in emerging markets. We are also focused on advancing our R&D efforts to develop next-generation lubricants that cater to the evolving demands of various industries. Sustainability will continue to be a major priority, and we are investing in new technologies to enhance the environmental performance of our products. Ultimately, our goal is to remain at the forefront of the lubricant industry, providing innovative solutions that drive efficiency and reliability for our customers.

For more details visit our website  
<https://molygraph.com/>



## ***WARNING!*** ***THE OEM-RECOMMENDED LUBRICANTS*** ***MIGHT NOT THE BEST CHOICE***



When maintaining lubricated assets in an industrial plant, the common belief is that following the Original Equipment Manufacturer's (OEM) lubricant recommendation is the safest and most effective route. This advice stems from the trust in OEMs' knowledge and their presumed alignment with the best interests of their machines. However, is this universally applicable, especially in large-scale operations? To thoroughly explore this question, this article delves into two critical areas. First, we'll examine the underlying objectives and considerations behind an OEM's lubricant recommendation. Are these suggestions purely technical, or do other factors come into play? Second, we focus on your plant's unique environment and operating conditions. Here, we'll discuss the primary objectives when selecting lubricants for a diverse range of machinery across a typical plant environment and everyday maintenance challenges. This discussion aims to underscore the much-needed attention to best practice lubricant selection while challenging the notion that OEM recommendations are always the optimal choice for every situation.

### **OEM Lubricant Recommendations**

A lubricant recommendation from the OEM



is expected with just about any lubricated machine, such as compressors, gearboxes, turbines, hydraulic systems, and electric motors. Often, the lubricant may be listed on the nameplate or a sticker near the oil fill point or grease fitting, especially if it's already prepacked or prefilled with a specific lubricant. At a minimum, the OEM-recommended lubricant is usually found in a lubrication section in the OEM manual. Most will relate to this as we often find this in the manual located in our vehicle's glove box. These recommendations are selected based on many considerations, including these four key areas.

- 1. Machine Design and Operating Requirements:** OEMs select a lubricant to match the machine design needs and test their machines under specific conditions with certain performance criteria. The focus is typically unreliability and longevity within the target design life. The operating conditions will consider factors like operating temperature ranges, load conditions, speed, and environmental factors like dust, moisture, or chemical exposure. The recommended lubricant must be capable of performing effectively under these varying con-



ditions. For example, it is common for multiple lubricant viscosities to be recommended based on different operating temperature ranges. Also, base oils and additives are selected to consider compatibility, such as with seal materials, metals, or potential interactions with process fluids to avoid corrosion, degradation, or other forms of damage.

2. **Industry Standards and Certifications:** Lubricants must often meet certain industry standards or certifications. This is usually the case for equipment like compressors, turbines, or other machines where the OEMs recommend lubricants that establish standardized approvals for major capital investment or have a higher risk to the environment, health, or safety. Turbine oils, for example, have extensive lab testing and validations for the lubricant's performance in specific equipment categories, often included in the Product Data Sheets under "OEM Approvals."
3. **Warranty, Liability Concerns, and Other Commercial Factors:** Recommended lubricants are often a stipulation for maintaining a warranty. This requirement stems from the OEM's confidence in specific lubricants chosen to minimize the risk of machine failure that could potentially result in warranty claims or legal liabilities. Furthermore, OEMs frequently sell these lubricants directly, under white-label branding. It is worth noting, however, that commercial agreements between OEMs and lubricant manufacturers may also influence such practices. While these agreements do not inherently imply that the recommended lubricants are of inferior quality, they can shape the OEM's lubricant recommendations. This factor is critical to consider as it may affect the selection of lubricants suggested by OEMs.
4. **Overall Ease of Maintenance and Cost-Efficiency:** OEMs often consider the balance between the cost of the lubricant and the overall cost of operation and maintenance. The goal is to recommend a lubricant that provides cost-effective operation over the equipment's lifespan. This includes considerations like the frequency of lubricant changes and the availability of the lubricant in the market.

Selecting any one lubricant for any one machine can often be easy. For a smaller volume system, the lubricant is a minor cost. The answer in this case is often to "just use the OEM-recommended lubricant. It's easy. It's a safe choice." For a larger volume system that is critical to operations, the lubricant is a much more significant cost, and one bad choice here could cost the organization significantly in repair costs and downtime. Thus, it's often the same answer,

"just use the OEM-recommended lubricant. It's easy. It's a safe choice."

This tactic may be adequate at first. However, several shortcomings require a more strategic approach, particularly when considering your plant's specific environment and operating conditions and the typical challenges of managing maintenance across hundreds of machines. In this case, the "safe choice" may have far-reaching implications that flip the script on lubricant selection.

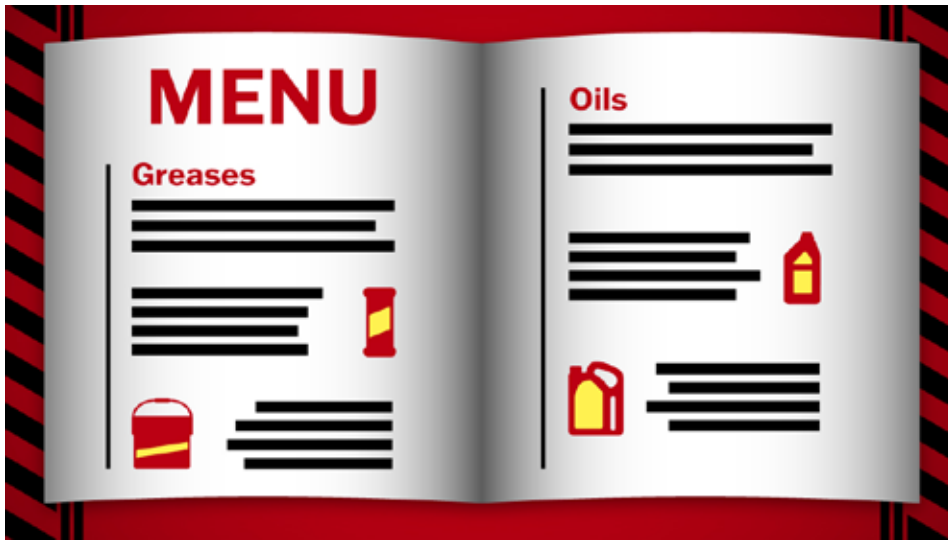
### Considerations in Plantwide Lubricant Selection

First, lubricants must be viewed not as consumables but as assets. In the simplest terms, an asset is something with economic value and the expectation that it will continue to provide benefits in the future. We maintain our assets because they provide us value in return the longer they last. We optimize the selection of assets based on reliability and the potential return. When properly maintained and carefully selected, an adequately selected lubricant has the same potential as an asset. Organizations that have focused on this as a proactive measure have realized significant short-term savings towards their maintenance budget and several times more in increased uptime of machines.

1. **Lubricant Consolidation:** Imagine a restaurant allowing every customer to customize their meal. While this approach caters perfectly to each individual's taste, it would require the restaurant to stock an enormous variety of ingredients and significantly complicate the cooking process. This could lead to inefficiencies, increased costs, longer wait times, and potential errors in order fulfillment.

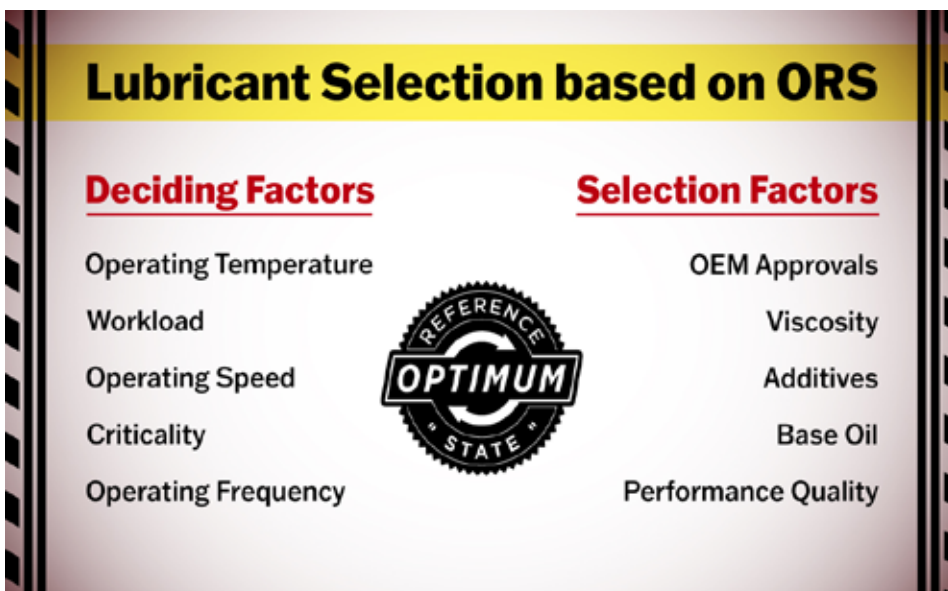
In contrast, consider a restaurant with a well-thought-out menu. This menu may not cater to every specific customer preference, but it offers a balanced variety of dishes that satisfy the majority of patrons. By doing so, the restaurant operates more efficiently: the kitchen can manage stock better, prepare

meals faster, and maintain higher quality and consistency, all while reducing costs and complexity.



This scenario parallels the situation in a large plant with numerous machines. If each machine uses an OEM-recommended lubricant, the variety (like the fully customizable menu) becomes unmanageable, leading to logistical challenges and increased costs. However, by selecting a consolidated list of lubricants (like a set menu), the plant can adequately meet most machinery’s needs. This approach enhances overall operational efficiency, simplifies inventory management, and reduces costs, even if only some machines have their ideal, specific lubricant. Typically, more favorable lubricant supplier agreements can be arranged, providing immediate cost savings. However, the most prominent savings may be from reduced machine failures often associated with undocumented root causes like cross-contamination.

**2. Optimum Lubricant Selection:** Like most other maintenance decisions on a machine, factors of criticality, safety, cost, and environmental impact will influence. This means that even across multiple identical machines, it may require different machine modifications, condition monitoring needs, lubrication practices, and lubricants selected, all based on what is optimal to meet reliability objectives. This is called the Optimum Reference State (ORS).



The OEM-recommended lubricant is typically a single lubricant (or specification) that considers their machines’ most intended use case. However, any one machine may have very different operation environments. For example, based on ORS factors such as criticality, one specific machine may be sufficient with a simple economically selected lubricant. In contrast, in another area of the plant, the same type of machine may require a premium lubricant with more diligent monitoring of lubricant condition changes over time. Both may be in the Optimum Reference State and the most cost-effective choice considering the Total Cost of Ownership (TCO) and impact on machine reliability.

Even strictly speaking about the machine’s specific operating conditions, lubricants need meticulous selection. Operating temperature, workload, and operational frequency are fundamental factors that can significantly affect lubricant performance. These can be counteracted with adjustments in lubricants election, such as with viscosity (such as with operating temperature and load) or additive or base oil robustness (such as for oxidative stability or seal compatibility).

**3. Upgraded Lubricant Selection:** Lubricant technology is constantly evolving. New formulations and additives are developed regularly, offering enhanced performance characteristics such as better temperature stability, improved wear protection, and extended lubricant life. In some cases, newer aftermarket lubricants may outperform the OEM-recommended products, especially in harsh or unusual operating conditions.

Many new products in the growing aftermarket lubricant industry offer comparable or superior quality to OEM-recommended lubricants. These products often undergo rigorous testing and certification processes, ensuring they meet or exceed industry standards. Additionally, some aftermarket lubricants are specifically designed to address issues commonly found in certain types of machinery,

offering tailored solutions that OEM products may not provide.

### Think Broad When Making Your Lubricant Selections

In this article, we've challenged the default reliance on OEM recommendations, encompassing many factors, including machine design, industry standards, warranty concerns, and cost-efficiency considerations. Meanwhile, with a plantwide perspective, lubricant selection is altered with broader operational objectives like daily efficiencies, TCO, and machine reliability. From the viewpoint of an asset rather than mere consumables, lubricants must require a much more careful selection.

So, what are your motives for selecting a machine's lubricant? For some in maintenance, the primary concern might be finding a

readily available "approved lubricant." Period. While sharing this need, maintenance managers and reliability engineers are likely more attuned to how lubricant choices enhance equipment reliability. Then, there are operations supervisors, inventory clerks, and plant managers, each with unique considerations and their own perspective on how it impacts costs.

Wait, there's more!... to this decision-making process. There is often special consideration for environmental impact, necessitating environmentally acceptable lubricants (EALs) or industry-specific needs like food-grade lubricants in food and beverage facilities. More over, the common belief that using alternate lubricants automatically voids warranties is a myth provided these lubricants meet the required specifications. Companies like Noria that specialize in lubrication recommenda-

tions offer a wealth of expertise when tailoring to specific operational needs - an aspect sometimes overlooked in OEM recommendations.

TCO, the intricacies of maintenance culture, and the impact of lubricant selection on plantwide reliability make lubricant selection much more than just technical questions. This is a paradigm shift in how we perceive and embrace lubricants as vital assets that significantly impact the efficiency and longevity of machinery. Operators and maintenance managers can make more informed decisions by integrating the lessons learned here. This enhanced decision-making process has the potential not only to improve equipment performance and lifespan but also to optimize operational costs and environmental footprint.



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## **CHALLENGES AND SOLUTIONS IN IMPLEMENTING A WORLD-CLASS LUBRICATION PROGRAM**



In the world of industrial machinery and equipment, effective lubrication is the lifeblood that keeps everything running smoothly. Yet, many organizations face numerous challenges when implementing or upgrading their lubrication programs. The road to a world-class lubrication program can be fraught with obstacles, from selecting the right lubricants to ensuring proper training and contamination control. In this article, we will explore some common challenges organizations encounter and provide practical solutions and best practices from industry experts to help you overcome these hurdles.

### **Lubricant Selection Challenges**

Choosing the right lubricants is crucial for a successful lubrication program. Inadequate lubricant selection can lead to premature equipment failure, increased maintenance costs, and reduced productivity. However, the market is flooded with many lubricant options, making the selection process challenging.

#### **Solution: Conduct Lubricant Audits and Consult Experts**

To overcome lubricant selection challenges:

1. Conduct lubricant audits to assess the



2. Collaborate with lubricant suppliers and industry experts to identify the best lubricants for your specific applications.
3. Utilize tools such as lubricant selection software to help you make informed choices based on equipment specifications, operating conditions, and industry standards.

#### **Contamination Control Challenges**

Contaminants like dirt, moisture, and particles can significantly impact lubricant ef-

fectiveness and equipment longevity. Maintaining a clean lubrication environment is essential, but it can be a constant struggle, especially in industrial settings.

#### **Solution: Implement Strict Contamination Control Practices**

To overcome contamination control challenges:

1. Establish rigorous cleanliness standards and procedures for lubricant storage, handling, and application to address contamination control challenges.
2. Use dedicated storage containers and equipment to prevent cross-contamina-



tion.

3. Regularly monitor lubricant quality through oil analysis and filtration systems.
4. Implement predictive maintenance techniques to identify and address contamination issues before they escalate.

### Equipment Compatibility Challenges

Every piece of equipment has unique lubrication requirements, and ensuring compatibility between lubricants and machinery can be challenging. Using the wrong lubricants can damage equipment, increase downtime, and cause costly repairs.

### Solution: Create Equipment-Specific Lubrication Plans

To mitigate equipment compatibility challenges:

1. Develop equipment-specific lubrication plans.
2. Consult equipment manuals and manufacturers' recommendations to determine each machine's optimal lubricants and intervals.
3. Utilize color-coding or labeling systems to reduce the risk of cross-contamination.
4. Regularly review and update lubrication plans as equipment evolves or new lubricants become available.

### Cost Constraints Challenges

Implementing a world-class lubrication program often requires a significant financial investment. Small and medium-sized enterprises, in particular, may face budget constraints that hinder their ability to purchase high-quality lubricants, invest in training, or upgrade their equipment.

**Solution: Prioritize Investments Strategically**  
To address cost constraints:

1. Prioritize your investments strategically.
2. Start with critical equipment and high-impact areas where improving lubrication can yield the most significant benefits.

3. Consider forming partnerships with lubricant suppliers to negotiate favorable pricing and bulk purchase agreements.
4. Explore financing options or government grants available to support your lubrication program initiatives.

### Training and Skill Development Challenges

One of the foremost challenges organizations encounter when implementing a lubrication program is the need for adequately trained personnel. Effective lubrication requires specialized knowledge and skills. Without proper training, technicians may not understand the nuances of lubricant application, which can lead to over-lubrication, under-lubrication, or contamination.

### Solution: Invest in Comprehensive Training

Organizations should invest in comprehensive training programs for maintenance and engineering staff to address this challenge. These programs should cover lubrication fundamentals, lubricant types, application techniques, and equipment-specific requirements. Consider partnering with lubrication experts, like Noria Corporation, or industry associations, like the International Council for Machinery Lubrication (ICML), to access training resources and certifications. Regular refresher courses help keep your team up to date with the latest industry practices.

### Resistance to Change Challenges

Resistance to change can be a significant road block when implementing a lubrication program. Employees may be accustomed to existing practices and hesitant to adopt new procedures, even if proven more effective.

### Solution: Foster a Culture of Continuous Improvement

To overcome resistance to change:

1. Create a culture of continuous improvement within your organization.
2. Communicate the benefits of the lubrication program and involve employee in the decision-making process.

3. Provide training and resources to support employees in adapting to new practices.
4. Recognize and reward individuals and teams for their contributions to the program's success.

### Conclusion

Implementing a world-class lubrication program is critical to achieving optimal equipment performance, reducing maintenance costs, and increasing overall productivity. While challenges may arise along the way, organizations can overcome them by investing in training, selecting the right lubricants, controlling contamination, ensuring equipment compatibility, managing costs wisely, and fostering a culture of continuous improvement. By addressing these challenges with practical solutions and best practices, your organization can pave the way for a smoother and more efficient lubrication program, ultimately reaping the rewards of enhanced equipment reliability and longevity.

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## ***THE CRUCIAL ROLE OF PROPER LUBRICATION IN SPECIAL INDUSTRIES***



The lubrication process is commonly understood to enhance performance, but its core purpose lies in safeguarding machines from extreme conditions. Lubricants are pivotal in curbing friction, wear, and overheating while shielding against corrosion and contamination. This vital role spans across various industries like aerospace, marine, food and beverage, pharma, textile, and power generation.

Exploring lubrication's significance in specialized industrial sectors, today's market demands that all companies, including many lubricant manufacturers in the UAE, are pivotal in crafting high-quality products tailored to diverse industry needs.

### **Common Lubricants Used in Special Industries**

Liquid, semi-solid (grease), and solid (powder) lubricants each serve distinct machine requirements, tackling issues such as wear, corrosion, and temperature management, across a multitude of special industries. Liquid-form lubricants are formulated using high-quality base oil with advanced additives to offer exceptional performance along with complete protection from damage and breakdowns. Most times, these oils are applied to industrial machines through different methods such as drip, splash, force,



spray, or mist, etc.

Oil-based lubricants are commonly used in industrial machines and equipment operating under high-speed and high-temperature conditions to prevent these machines from overheating, wear and tear, and corrosion. However, these oil lubricants have some major issues including leakage, degradation, oxidation and foam formation.

Some frequently used solid lubricants include graphite, molybdenum disulfide, boron nitride, fluoro polymers, calcium fluoride, and tungsten disulfide. These lubricants are normally used in machines and equipment that

are not compatible with liquid and semi-solid lubricants. In such conditions, solid lubricants are used to reduce friction and minimize wear and tear on industrial machines. They are highly capable of preventing heavy contact and tension between machine components when they slide and roll over.

A solid lubrication program is highly crucial in most, if not all, industrial sectors, especially in machines and equipment operating under extreme temperatures and heavy workload conditions.

**Let's explore some of the major special industries in which efficient lubrication is highly important:**

## 1. Aerospace

Lubrication is one of the most important aspects of the aerospace industry due to the complex nature of operation through various atmospheric and temperature conditions. Lubricants used in the aerospace industry are formulated with advanced technologies to better withstand high and low-pressure conditions, oxidation stability, resistance against corrosion and rust, and protection from particle contaminants.

Maintaining proper lubrication within an aircraft, most notably the engine, is essential due to the high friction it produces compared to automobile engines. Due to high friction, there is always the chance for overheating and the resulting heavy damage and engine failures or potential explosion.

## 2. Marine



The marine sector also requires high-level lubrication in order to withstand extremely low temperatures and resistance to corrosion and rust. Lubrication in the marine industry is not just focused on freight or passenger ships; it also covers the equipment and machines used in container harbor ports (such as overhead cranes and gantry cranes) mobile harbor cranes, fixed port solutions, straddle carriers, to name a few.

All these heavy-duty machines and equipment are heavily exposed to saltwater, rain, and high- and low-temperature conditions, so proper application of high-quality lubricants ensures smooth and easy functioning under all kinds of weather conditions.

Apart from port machines and equipment, lubrication is also important for ship engines. Ships normally have heavy-duty engines that operate with heavy friction and require more lubrication when compared with automobile or aircraft engines.

Lubrication on marine engine systems is implemented through four lubrication processes: (1) Hydrodynamic Lubrication, (2) Hydro-

static Lubrication, (3) Boundary Lubrication, and (4) Elasto-hydrodynamic Lubrication. The most popular marine engine oil grades include 1500 Marine Cylinder, Marine Cylinder Oil 1300, Marine Cylinder Oil 1000 and Marine Cylinder Oil 460..

These lubricants are formulated using advanced chemical technology to provide high resistance against corrosion and rust due to frequent exposure to saltwater and ensure consistent performance and protection when operating under challenging conditions at sea.

## 3. Motorsports

Lubricants and lubrication play a significant connection with motorsports racing, but most of the time, the importance of lubrication doesn't come to the limelight. Automobile racing is all about speed and performance, where every millisecond counts. The sport is not just about launching a powerful machine to the racetrack; instead, it depends on precision technology, engineering, and aerodynamics in a fast and dangerous environment.

On a race track, every corner, every acceleration, every gear shift, lockup, overtake, wheel to wheel-to-wheel battle can cause immense stress, heat, and pressure on the engine and moving parts of a racing machine. Lubrication is not just about reducing friction or protecting parts — it's about enhancing reliability, consistency, and durability in any kind of challenging conditions. Special oils and greases aren't as important and consistent and timely maintenance on these high-powered machines.



## 4. Mining

Today's mining industry is well equipped with highly sophisticated machines and equipment that help to increase production, but only if these machines are maintained with the proper lubrication system. Lubrication with high-quality lubricants is essential for mining machines in order to reduce friction and wear & tear, and providing steady performance and reliability under the most extreme temperature conditions.

Lubrication also helps these machines with easy energy transfer without overheating issues. Mining machines and equipment frequently operate in a dusty atmosphere so there is always a chance for contamination. Proper lubrication with top-quality lubricants that have detergent, anti-oxidation, and anti-foam formation properties help remove many of these contaminants and keep the lubrication system clean and functioning properly.

### 5. Food and Beverage

Lubrication is one of the most critical parts of the food and beverage manufacturing industry due to the application of integrated automation and IoT technology solutions. Food production using automation involves several steps like raw material quality detection, raw material washing and purifying, Ingredient mixing, production processing, packing, etc. Most of these processes are now heavily automated.

Such machines on these production lines require efficient lubrication in order to operate fluently without interruptions or failure. This is mainly facilitated via the integration of robotics and IT.

Lubrication is also important in food and beverage to secure the integrity and safety of food products we consume. The National Sanitation Foundation (NSF) has issued a list of lubricants with standards and regulations, especially for the food and beverage manufacturing industry. These NSF-rated lubricants are safe-to-use and nontoxic in machines and equipment for food manufacturing.

### 6. Pharmaceutical Manufacturing



Similar to the food and beverage industry, lubrication plays a crucial role in the pharmaceutical industry. Manufacturing of medicines has changed a lot due to the application of robotics and automation with IoT technology. Most of the lubrication processes in pharmaceutical manufacturing units are implemented using automated systems.

The pharmaceutical manufacturing process involves a series of machines and equipment in that product line that is operating continuously at high speed for longer durations. So, it's essential to give

an optimum level of lubrication for these machines in order to run the entire production process smoothly and seamlessly without any breakdowns or downtimes.

Another important role of lubrication in a pharma manufacturing facility is resistance against corrosion. Since most of these machines operate with the support of components such as rollers, spines, and ball bearings, efficient lubrication is crucial to prevent corrosion and rust.

### 7. Textile

Textile Industry is another sector where automation and machine technologies are widely used. Textile manufacturing with automation systems requires efficient lubrication and depends more on robotic control mechanisms because of the high number of small and large moving components. Therefore, it is highly essential to provide frequent and constant lubrication to prevent sudden breakdowns and damages.

Some of the major automated machines that come under the serial production lines include spinning machines, knitting machines, weaving machines, finishing machines, and stenter frames. All these machines require a proper level of lubrication to get maximum productivity with fewer downtime periods.

### 8. Energy & Power Generation



Most of the power generation units are equipped with heavy-duty machines such as turbines, generators, transformers and condensers, which operate under challenging conditions. Lubrication is essential for these heavy-duty machines for smooth and seamless functioning minimizing downtime under extremely heavy workloads with high-pressure and extreme temperature conditions.

These heavy-duty machines are frequently subjected to sudden breakdowns and damage, and they also have high chances of explosion due to overheating. Therefore, efficient lubrication with high-quality engine oil will help these machines to withstand or overcome such challenges.

## 9. Agriculture

Today's technologies have made farming easier and safer when compared to practices followed in the past. Some of the major farming machine technologies currently used are combine harvesters, cultivators, tractors, mower, harvester, planter, air seeders, sprayers, saw mill, pavers, balers, fertilizer spreaders, corn pickers, just to name a few.

Most of these heavy-duty machines operate under high-workload conditions and require consistent lubrication. Proper lubrication in these heavy-duty machines will help maximize performance and increase productivity and reduce downtime by minimizing friction, wear & tear, and helping to prevent overheating issues, breakdowns, and failure.

## 10. Construction



The construction industry also operates under extreme pressure and heavy-duty conditions. Almost all the machines and equipment operating in the construction and engineering industry are subjected to extreme wear & tear and overheating due to the heavy workload and temperature situations.

Some of the major heavy-duty machines frequently used in the construction sector include excavators, loader trenchers, bulldozers, backhoes, backhoe loaders, forklifts, dragline excavators, skid-steer loaders, compactors, feller bunchers, articulated haulers, and motor graders. Proper lubrication on these machines helps to reduce friction and wear & tear, and helps improve their performance and operate efficiently in harsh conditions over a long period of time.

## 11. Railways

Railways are another industrial sector where lubrication is widely applied, and grease lubricants are commonly used for these purposes. In the railway sector, lubrication minimizes the friction between train wheels and rail tracks. Improper or inadequate lubrication can neg-

atively impact the lifespan of rails, leading to frequent replacements and possible derailment.

Lubrication is also vital in the curves of railway tracks where side-cutting of rails often occurs, and regular rail lubrication is essential to increase the longevity of railway tracks.



## Conclusion

The lubrication process is vital across all industrial sectors in order to meet the different challenges and requirements unique to each industry. From high-pressure environments to heavy workload conditions, lubrication with high-quality lubricants plays a highly important role in ensuring the reliability and efficiency of machines and providing longer lifespans.

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# USING THE ASCEND CHART AS YOUR ROADMAP TO PROACTIVE MAINTENANCE



Giving a broken machine a fresh new lease on life is the calling of troubleshooters and mechanics. The maintenance field attracts people who are driven by such native desires, not unlike nurses and doctors. Some people like fixing things. I'm one of those people.

Yet, today's reliability-conscious world is changing the maintenance persona, taking it in a direction away from the macho image of the past. It's no longer desirable to yearn for the meltdown or the perfect storm.

Fading, too, is the sense of pride that came with going into battle, wrench in hand, to press the limits of one's mechanical prowess. Perhaps a sad reality to some, but reality, nonetheless.

At the bottom is the basal need to aspire to reliability. This includes buying machines that are designed and manufactured for long, sustainable life. No life cycle weak links.

Next comes precision installation and precision maintenance. This covers wide-ranging subjects such as consistency, accuracy, fit and



tolerance, alignment, balance, lubrication excellence, and the correct use of fasteners.

In contrast, reactive maintenance responds to any stage of machine failure along the P-F interval (incipient, impending, or precipitous). Of course, early detection (long P-F intervals) is the most desirable and is the mantra of predictive maintenance.

But why wait for the onset of failure? It's like waiting for the onset of heart disease and

cancer. There may be a cure, but, in many cases, the harm is already done, or the point of detection is too late, sometimes resulting in the dreaded sudden death.

When things start going south, the faster and faster they seem to go as they continue to get worse. This is obviously a place where no one wants to be.

So, in effect, reliability is, by definition, aspi-

rational. For humans, aspiring toward good health often involves acute and often-times uncomfortable lifestyle changes— you know, all the fun that comes with changing bad habits.

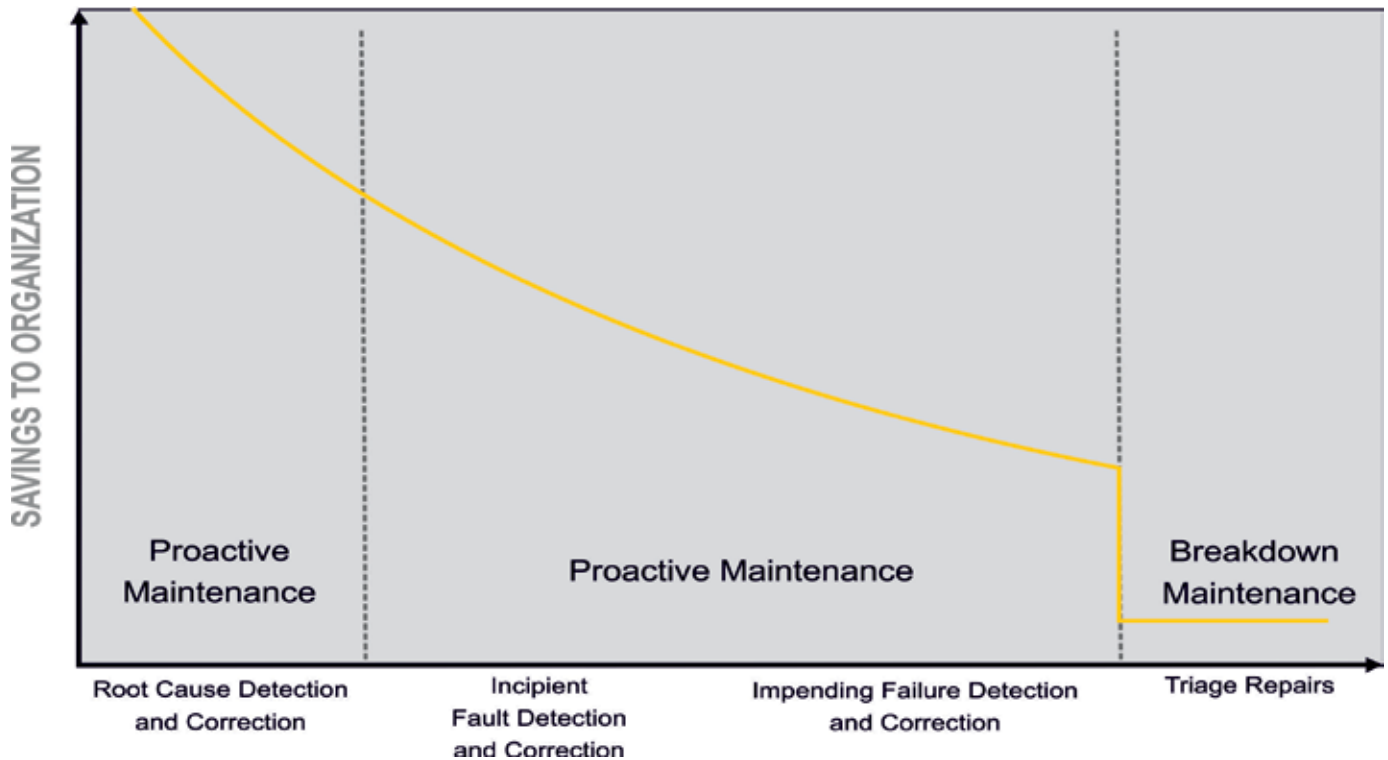
**Proactive Maintenance is Misunderstood** I first started writing about the virtues of proactive maintenance in the 1980s. Preventive maintenance and predictive maintenance were also important but failed to underscore the value of aspirational-driving machine reliability.

Proactive maintenance is about change and control. It has a condition-monitoring component, but only as part of the overall proactive maintenance philosophy.

Proactive maintenance refers to machine

Maintenance Strategy	Action Required	RCM-Based Application
Run to failure/breakdown (reactive)	Repair or replace upon failure.	Noncritical. Costs to control or detect failure exceed benefits.
Preventive Maintenance (scheduled part replacements)	Repair or replace on time or in cycles.	Asset has a well-documented meantime between failures (MTBF) and a small standard deviation.
Predictive Maintenance (on-condition maintenance)	Employs condition monitoring to detect early-stage failures. Replacement or repair is scheduled on condition.	Asset fails randomly. Critical nature justifies early detection techniques.
Proactive Maintenance	Advanced eradication and control of known root causes (e.g., misalignment, unbalance, lubricant starvation, lubricant contamination, etc.) Condition monitoring detects the presence of failure root causes.	Objective is to reduce the failure rate for a given time period.

Table 1: Differences in maintenance philosophy



Graph 1: Cost savings and benefits to organizations resulting from proactive maintenance services

lifestyle changes that avoid (or eradicate) the underlying conditions that lead to machine failure (faults, abnormal wear, etc.). Proactive maintenance targets root causes, not symptoms, and the central theme of which is to extend the life of mechanical machinery as opposed to making repairs.

Proactive maintenance certainly doesn't foster the belief that failure is normal or can be expected.

Table 1 above compares and contrasts the difference in maintenance philosophies. The graph below it plots the cost savings and benefits to organizations.

### Three Simple Steps

Proactive maintenance is a mindset change. What I'm really talking about are the 'ers of lubrication and maintenance. Sadly these are not generally understood and even less well-applied.

For instance, we are seeking oil that is not just clean but cleaner, and oil that is not just dry but drier. We can keep going... cooler, better lubricant, better inspection practices, better maintenance practices, better relubrication intervals, etc.

You get it — the 'ers of lubrication and maintenance. This may sound simple to you, but why does it seem like many organizations aren't doing it?

For example, how do you get a hydraulic pump to last four-times longer? How do you double the rebuild interval of a diesel engine? How do you reduce bearing-replacement frequency by 80%? How do you reduce unscheduled downtime by 50%?

All these objectives require change, persistence, and control. Proactive machine-lifestyle changes are designed to do just that.

It all boils down to these three simple steps:

1. **Set your target for change:** The target must be measurable or verifiable, and preferably better than past practices or conditions. You're not doing proactive maintenance if your oils are not cleaner, cooler, drier, etc. Just okay is not good enough. Machine life will not be extended for "okay".
2. **Next, you must implement change that attains the targeted machine-lifestyle change:** You may say you're going to lose 25 pounds, reduce your blood pressure and get your cholesterol under control. But you are lying to yourself if you don't change the root causes. I assume that you know what I mean. For your machine we're talking about changes like better filtration, better lubricants, better inspection skills, better procedures, better training. If you've set a target cleanliness of ISO 16/13/9 from historic averages of 19/16/11, then the changes might include better seals, better breathers, better lubricant handling/storage practices, and better contamination control.
3. **This third step is critical:** You must measure to verify the targets are being achieved and controlled. Celebrate successes, resolve deficiencies. If it is important enough to set a target and implement changes, it is important enough to measure.

What gets measured gets done. Oil analysis can tell us about oil health, cleanliness, and dryness. Inspection can tell us about oil levels and leakage, contaminant exclusion, oil temperature, aeration, etc.

*Machinery Lubrication* has published dozens, perhaps hundreds, of real-world examples of how these three simple steps work rigorously followed. It's not an imaginary or an abstract theoretical concept. To better understand the magnitude of proactive maintenance, I strongly encourage you to read this article:

The Power of 10X.

### Follow the Ascend Chart

The Ascend Chart was constructed to provide a useful framework or roadmap for the deployment of a proactive maintenance strategy in lubrication. It consists of six lifecycle stages, going clockwise starting from the top. Within each stage are specific "change and control" opportunities.

#### The following are some examples:

1. **Lubricant Selection:** Matching the correct lubricant to your machine, operating environment and exposures is an engineering exercise. Don't let any one suggest otherwise. Lubricants are not all alike. There are tens of thousands to choose from. What is the perfect viscosity, viscosity index, base oil type, additive chemistry, treat rate, package and transport method, supplier support, etc.? Get the help you need.
2. **Lubricant Reception and Storage:** This refers to your lubricant's health and protection from contamination and accidental mixing. A lubricant can lose more life during reception and storage than when it resides in the machine.
3. **Lubricant Handling and Application:** This covers how lubricants are changed or relubricated, the frequency and the amount. Mostly it seeks to ensure that machines aren't under-lubricated or over-lubricated. Changing oil and grease levels, even by what seems like insignificant amounts, can have a sharp impact on machine life. Next, change the oil on time. Through routine oil analysis oil, changes can be changed "on condition," not too soon or too late. This can be applied to regreasing intervals as well.
4. **Contamination Control and Lubricant Relubrication:** Just as the name implies, keeping lubricants clean, dry, and cool within the target level is an endless but necessary task. Controlling contaminant ingress is job one. Next is



the rapid removal of contaminants once that make contact with the oil. Just because the oil looks clean and dry doesn't make it so. Use oil analysis for verification.

- 5. Condition Monitoring, Lubricant Analysis & Troubleshooting:** It's darn hard for a machine to be in trouble (impending failure of bearing, gear, cylinder, engine, etc.) without the lubricant knowing about it first. The lubricant is the common medium across all frictional components. Oil analysis only works when lubricants are sampled frequently, sample properly, and tested correctly. Don't pretend to save money by buying cheap oil analysis. The same holds true for inspection. Inspectors shouldn't just be just looking at machines but should, instead, be carefully examining the machines with a keen and purposeful eye. This is just as important as oil analysis but is rarely done well.
- 6. Energy Conservation:** Health & the Environment. Energy conservation alone presents huge cost savings opportunities for most organizations. Much of this relates to lubricant selection, as

well as established lubrication practices too. Reducing machine frictional losses by 10-20% has often been reported by making smart choices.

### Point of Diminishing Return

I often refer to the need to optimize and not maximize. We're not trying to maximize reliability, but rather to optimize it. An excellent discussion of this can be found in the article, How to Optimize the State of Lubrication.

Excessiveness is a source of waste and an unwise use of time and resources. Yes, the cost of excessive training, cleanliness, dryness, oil sampling frequency, test-slate selection, lubricant robustness, relubrication frequency, etc., can, in certain cases, exceed the benefits gained. But don't let the fear of "excessiveness" deter you from the pursuit of the optimum.

# The Guide to Lubrication Excellence

**Energy Conservation, Health & The Environment (E)**

- E1P Energy Conservation, Health & Environmental Impact
- E2P Storage & Disposal of Used Oil & Materials
- E3M Leakage Management
- E4M Energy Conservation, Health & Environmental Training
- E5K Energy Conservation, Health & Environmental KPIs

**Lubricant Selection (S)**

- S1P Lubricant Selection Process
- S2P Lubricant Supplier Selection
- S3P Lubricant Identification System
- S4M Consolidation & Optimization
- S5M Lubricant Selection Training
- S6K Lubricant Selection KPIs

**ICML 55.1 Subjects**

ICML Subject	ASCEND Factors
1. Safety	E5K, S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
2. Machine	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
3. Lubricant	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
4. Lubrication	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
5. Tools	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
6. Inspection	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
7. Lubricant Analysis	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
8. Troubleshooting	S1P, S2P, S3P, S4M, S5M, S6K, E1P, E2P, E3M, E4M, E5K
9. Waste	E1P, E2P, E3M, E4M, E5K
10. Energy	E1P, E2P, E3M, E4M, E5K
11. Reclaim	E1P, E2P, E3M, E4M, E5K
12. Management	M1P, M2P, M3P, M4M, M5M, M6N, M7M, M8M, M9M, M10M, M11M, M12M

**The ASCEND™ Chart**  
 3 Levels • 6 Lifecycle Stages • 40 Factors

Backed by years of proven experience, Noria's ASCEND™ Chart is an effective tool for evaluating the current state of your lubrication program against world-class standards. The ASCEND™ Chart consists of three levels: Platform, Management and Training, and KPIs. These levels are divided into six lifecycle stages, starting with Lubrication Selection and contain 40 factors. The ASCEND™ Chart provides a quick and efficient visual representation to aid your lubrication program transformation. See [noria.com/ascend](http://noria.com/ascend) for detailed use of the chart.

ASCEND Chart

# **INNOVATIONS IN LUBRICATION** | **GEAR TALK:**

## **Episode 2**

### *The Golden Age of Lubrication*



In this episode of Gear Talk, Wes is joined by Jim Fitch, CEO and founder of Noria Corporation, to discuss "The Golden Age of Lubrication".

From cutting his teeth as a technician in his father's fluid power research center at Oklahoma State University to writing his first industry article in 1975 on the history of fluid power and hydraulics, Jim shares how he got started in the industry and how his experiences has led to his perception of this being "The Golden Age of Lubrication".

What does he mean by that? Watch this episode and find out!



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# 3rd ROSEFIELD CONFERENCE ON CIRCULAR ECONOMY IN USED OIL - EMBARKING INTO THE EPR ERA



The 3rd Rosefield Conference on Circular Economy in Used Oil, held on 20th June 2024 at the Taj Palace in New Delhi, gathered over 270 participants, marking a pivotal step in promoting sustainability under the Extended Producer Responsibility (EPR) framework. This event featured six sessions with more than 25 speakers, providing an in-depth analysis of the future of used oil management.

### Key Highlights:

#### Inauguration and Keynote Speakers:

**Chief Guest:** Dr. Vijay Kumar Saraswat, a Padma Shri and Padma Bhushan awardee, known for his contributions to national security and innovation.

**Chief Mentor:** Dr. SSV Ramakumar, a leader in the lubricant industry.

**Guests of Honour:** Included Vinod Babu (CPCB), Sandeep Kalia (Valvoline Cummins), Shailendra Gokhale (Rosefield Energy Tech), Madan Lal Khandelwal (PRAI), Urmila Bhargava (IFP Petro), Spyros Thomas (LPC SA), and Mario Majic (Avista Oil).

#### Sessions and Discussions:

##### Policy Perspectives:

**Panelists:** Prabhjot Sodhi (CEE), Vinod Babu (CPCB), Shailendra Gokhale (Rosefield Energy Tech), and Amit Verma (Niti Aayog).

**Focus:** Current and future state of used oil management in India, importance of EPR, technological and policy advancements, improper disposal, and the informal sector's role in oil collection.

##### EPR Compliance Strategies:

**Panelists:** Kapil Vyas (SGSPL), Shakti Mishra (HPCL), Vikas Gupta (Nandan Pet-



rochem), Binu Chandu (PETRONAS), and Kailash Sawant (Lubrizol).

**Focus:** Strategies for EPR compliance, need for a robust oil collection ecosystem, circular green lubricants, government support, and innovative solutions.

##### Global Perspectives:

**Speakers:** Dr. Christos from LPC SA (Greece) and Mario Majic from Avista Oil (Germany).

**Focus:** Best practices from other countries and their adaptation to the Indian context.

##### OEMs and Used Oil Collection:

**Panelists:** Prashant Banerjee (SIAM), R. Ramaprabhu (Mahindra & Mahindra), Kedar Gore (Rosefield Energy Tech), and Senthil Kumar (Ashok Leyland).

**Focus:** Challenges with current regulations, market conditions, and efforts to improve used oil collection and re-refining.

##### Re-refiners' Role:

**Panelists:** Sudhir Sachdeva (Siddharth Grease), Gaurav Maheshwari (Shell), Sarvesh Kumar (IOCL), Meenal Passi (BIS), and Philip Mathew (PRAI).

**Focus:** BIS regulations for Used Motor Oil (UMO) and Recycled, Re-refined Base Oils (RRBO), standards, technological advancements, and industry challenges.

##### Developing a Unified Roadmap:

**Panelists:** Dr. SSV Ramakumar (IOCL), Sandeep Kalia (Valvoline), Arijit Basu (Veedol), Sanjay Kumar (HPCL), Manish Sharma (RECEIC), Sudhir Kumar (Niti Aayog), and Senthil Kumar (Ashok Leyland).

**Focus:** Stakeholder collaboration, technological advancements, effective logistics, improving reverse logistics, OEM support for EPR, and necessary regulatory updates.

##### Major Announcement:

**Rosefield Energy Tech's "RecykLube" Initiative:** This initiative aims to revolutionize oil collection through technology, ensuring end-to-end used oil collection visibility and monetary transparency, significantly aiding EPR compliance.

##### Conclusion:

Participation from over 120 companies, including top lubricant manufacturers, Auto OEMs, local and global re-refiners, and government officials, demonstrated the broad industry commitment. The insights and strategies shared at the conference are expected to play a crucial role in shaping the future of used oil management in India as the industry moves forward into the EPR era.

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LUBRICANTS

## ***Autoz365 Lubricants Launches in Ahmedabad, Gujarat***

National, July 11, 2024 – Autoz365 Lubricants, a division of Tesla Power India Pvt. Ltd., celebrates its debut in Ahmedabad, Gujarat, marking a significant milestone in delivering premium lubricants and maintenance solutions tailored for today's vehicles and discerning owners.

Crafted with advanced formulations, Autoz365 Lubricants optimize engine performance, enhance fuel efficiency, and extend engine life. Rigorous testing and cutting-edge technology ensure these products meet the highest standards of quality and reliability.

“We are thrilled to introduce Autoz365 Lubricants in Ahmedabad, a city known for its vibrant automotive culture and industrial growth,” stated Mr. Rohit Karan, Executive Director of Tesla Power India Pvt. Ltd. “Our comprehensive range includes Engine Oil, Gear Oil, Coolant, and Brake Oil, designed to provide unmatched protection and efficiency. This launch reaffirms our commitment to innovation and leadership in the automotive sector.”

The launch event, held at Four Points by Sheraton in Ahmedabad, featured live demonstrations, product showcases, and interactive sessions with industry experts.



Attendees gained valuable insights into the benefits of Autoz365 Lubricants, learning how these products can significantly enhance vehicle performance and longevity.

Autoz365 Lubricants offer advanced engine protection, ensuring smooth operation in diverse conditions by combating wear and tear. They enhance fuel efficiency by reducing friction, helping drivers save on fuel costs. Designed to maintain engine cleanliness and efficiency, these lubricants extend the lifespan of vehicles.

Autoz365 Lubricants launched in Ahmedabad to expand into the Indian market, le-

veraging success from the Gulf region. With a strong distribution network across India, they aim to offer premium products for vehicle maintenance at competitive prices. CEO Mr. Rihem Bhardwaj expressed excitement, citing rigorous testing in motorsports events, proving efficacy across various terrains. Autoz365 Motorsports, known for excellence in motorsports, attributes its success to these lubricants, ensuring peak performance under demanding conditions. The launch event, attended by Tesla Power India Pvt. Ltd. partners nationwide, featured a tour of their advanced manufacturing facility, receiving widespread acclaim and enthusiasm.



## **BPCL JOINS FORCES WITH INDIAN OLYMPIC ASSOCIATION AS PRINCIPAL SPONSOR**

Delhi/Mumbai, June 30, 2024: Bharat Petroleum Corporation Limited (BPCL), a 'Maharatna' and a Fortune Global 500 Company, proudly announces its partnership with the Indian Olympic Association (IOA) as the official Principal Partner for four years, spanning from the Paris Olympics '24 through the Los Angeles Olympics '28.

This significant collaboration honors and supports the perseverance of Indian athletes, many of whom hail from diverse backgrounds and remote regions of India.

As part of this alliance, BPCL will launch a series of campaigns aimed at bolstering the Indian contingent heading to Paris. These initiatives seek to inspire the nation, rally support for our athletes, and celebrate their relentless pursuit of excellence on the global stage. Through these campaigns, BPCL reaffirms its commitment to nurturing sporting talent and fostering a sense of national pride and unity.

Mr. G. Krishnakumar, C&MD BPCL, emphasized, "Aligned with BPCL's ethos of nurturing and empowering India's sporting talent from grassroots to elite levels, we have supported over 200 athletes across various disciplines over the years. Our support aims to instill confidence in athletes, serving as a launchpad for their dreams."

"We are delighted to partner with the Indian Olympic Association, standing with cham-



pions who embody peak performance and passionate dedication, dazzling the world with their remarkable achievements," Mr. Krishnakumar added.

IOA President PT Usha remarked, "We extend our gratitude to BPCL for joining us as the Principal Partner for the upcoming four-year journey, starting from the Paris Olympics '24. This partnership underscores our joint commitment to fostering sporting talent and nurturing role models for India."

Mr. Sukhmal Jain, Director (Marketing), commented, "The Olympics' ability to unite nations is unparalleled. Our collaboration with Team India at the Olympics not only reflects our dedication to sports development

but also our shared vision of supporting our athletes to achieve unprecedented success. We thank the Indian Olympic Association for this opportunity to serve as the official Principal Partner for Team India."

Mr. Neerav Tomar, MD, IOS Sports & Entertainment, added, "We are privileged to have played a role in facilitating this significant partnership between IOA and BPCL. This long-term collaboration underscores our commitment to supporting and celebrating Indian athletes from every corner of the nation. BPCL's campaigns will rally nationwide support for our athletes heading to Paris and inspire future athletes aiming for LA 2028."



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