Kouper Lubricants Private Limited

KOUPER Products are derived with innovative formulations and technology with the re-defined tribological solution to all industrial applications.

Coolant Management - Dec-2023


METAL WORKING FLUIDS


NEAT CUTTING OILS


GEAR OIL


HYDRAULIC OIL


RUST PREVENTION OIL


SPINDLE OIL


LUBE OIL


KNITTING OIL


CLEANERS


EDM OIL


DRAWING OIL

Your ideal product collaborator.

Continuous monitoring of coolants is crucial to uphold their performance and quality. This practice not only extends machine and fluid lifespan but also enhances manufacturing efficiency, maximizes profitability, and contributes to improved safety. Despite these benefits, fluid condition monitoring doesn't have to be complex or costly.

Multiple monitoring techniques are available to measure a range of factors affecting coolants. While some tests may require laboratory analysis, others are relatively simple and cost-effective to conduct. This concise guide offers insights into establishing and implementing efficient condition-based analysis techniques for coolants.

Kouper lubricants come up with knowledge transfer magazines to improve our product partners to enhances their manufacturing efficiency, maximizes profitability, and contributes to improved safety.

Technical Support Excellence

Benefit from our unparalleled expertise in lubrication and chemical processes at KOUPER. We offer unmatched products and services with focused engineering, administrative, and technical support. Our comprehensive business support solutions encompass customer service team, customer account managers, and a team of experienced technical engineers and product specialists.

Every lubrication recommendation schedule and review are customized to the unique needs of your operation. Our goal is to extend service life and optimize operational efficiency. At KOUPER, we are committed to providing exceptional support for your technical requirements.

COOLANT
MANAGEMENT

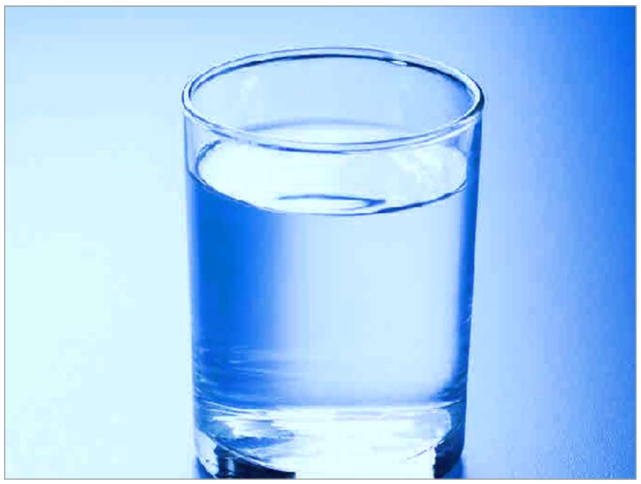
Compared to other types of lubricants, coolants need extra care and attention to ensure they're kept in good condition. Dirt and contaminants can have a detrimental effect on the effectiveness of the coolant, therefore good housekeeping practices, effective coolant management and high standards of hygiene are essential

Controlling Microbial Contamination in Water-Based Coolants

Microbial contamination stands as a significant factor leading to diminished fluid quality and lifespan. Water-based coolants, in particular, provide an abundant water supply that supports microbial growth if not well maintained and controlled. Microorganisms can infiltrate coolant systems through various avenues, including tramp oil, organic matter (e.g., food), water used in emulsion mixing, and metal fines.
The presence of bacteria can significantly degrade the technical performance of water-miscible cutting fluids. Bacterial activity can create an acidic environment, leading to coolant separation and a reduction in lubricity. Signs of bacterially spoiled emulsions include emulsion instability or splitting, offensive odors after machine shutdown, increased corrosion or rusting, changes in coolant color, a drop in pH levels, or the presence of scum clogging lines or filters.

Solution: While it's challenging to prevent bacteria from entering the coolant system, their levels can be managed effectively. To minimize the impact of bacteria, implement good coolant management practices. This includes maintaining the correct fluid concentration, removing tramp oil, and ensuring cleanliness by removing swarf. Regular cleanouts, as needed, are crucial to limiting bacteria growth and extending service life. By adopting these measures, you can effectively control microbial contamination and ensure the longevity and efficiency of water-based coolants.

Optimizing Water Quality for Soluble Emulsions



Soluble emulsions typically consist of 85-98% water, making the quality of water a critical factor in fluid performance. The higher the water quality, the longer the coolant's lifespan. Water hardness, ranging from very soft (0-20 ppm) to very hard (400 ppm and above), can impact foaming, mixing, and the stability of the fluid.

Solution: In cases of generally poor water quality, employing water softeners, de-ionization, and reverse osmosis systems can significantly improve water quality. These technologies help mitigate issues associated with water hardness, ensuring better emulsion stability. Additionally, water quality is a key factor in preventing microbial contamination. For optimal results, prioritize the use of fresh drinking water when available, as it reduces the risk of impurities that could compromise the fluid's performance. By addressing water quality concerns, you enhance the overall effectiveness and longevity of soluble emulsions.

Managing Tramp Oil in Coolant Systems

Tramp oil, an undesired lubricating oil that infiltrates the coolant system, stands as a predominant contamination challenge. It tends to float on top of water-based emulsions due to its lower specific gravity than water. This creates a sealing effect on the sump's surface, leading to oxygen deprivation and the degradation of the system. In such conditions, anaerobic bacteria, not reliant on oxygen for survival, proliferate, releasing foul-smelling Hydrogen Sulphide. If left untreated, tramp oil can expedite fluid degradation, intensify corrosion, destabilize emulsions, and pose health hazards to workers.

Solution: Regular fluid circulation is crucial to prevent the formation of tramp oil and bacterial growth. Skimmers, tramp oil separators, or centrifuges can effectively separate and remove any tramp oil present. One of the easiest methods is to use any paper or newspaper can placed on the tramp oil, paper will observe the tramp oil, it can be thrown to dustbin. To eliminate mineral oil leakages into the coolant system, ensure machines are routinely cleaned, maintained, and monitored for any hose or seal leakages or defective parts that need replacement.
A well-managed system should ideally have less than 2% tramp oil to ensure optimal performance and safety.

Managing Swarf in Coolant Systems

Regular removal of swarf fines from the sump is essential to mitigate the risk of corrosion and to increase the available capacity for the coolant. Clearing away swarf also helps reduce the static zone, minimizing the potential for contamination. Effective coolant filtration is crucial to maintain a superior surface finish, enhance cutting performance, and safeguard machines from damage. Moreover, the removal of fines contributes to a reduction in the abrasive nature of sharp particulates on the skin.

Solution: To address excess swarf, employ filtration units or vacuums to separate and remove fines from the fluid as frequently as possible. It is advisable to perform this task before the machine tool is shut down for extended periods, such as between shifts, overnight, or before weekends. Well-managed coolant samples typically contain less than 100 ppm/mg per liter of fines, ensuring optimal performance and longevity.

Should you have any questions or require further assistance, please feel free to contact our technical support team at info@kouper.in / +91- 9611517922. Your satisfaction and the optimal performance of your metalworking fluids are our top priorities.

Your Right choice lubricant for Right application

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