Efficient Analysis of Wear Metals and Additives

The analysis of wear metals or additives in lubricating oils and contaminants in fuels is crucial to the proper maintenance and functioning of many types of machinery.

Monitoring Wear Metals For Predictive Maintenance

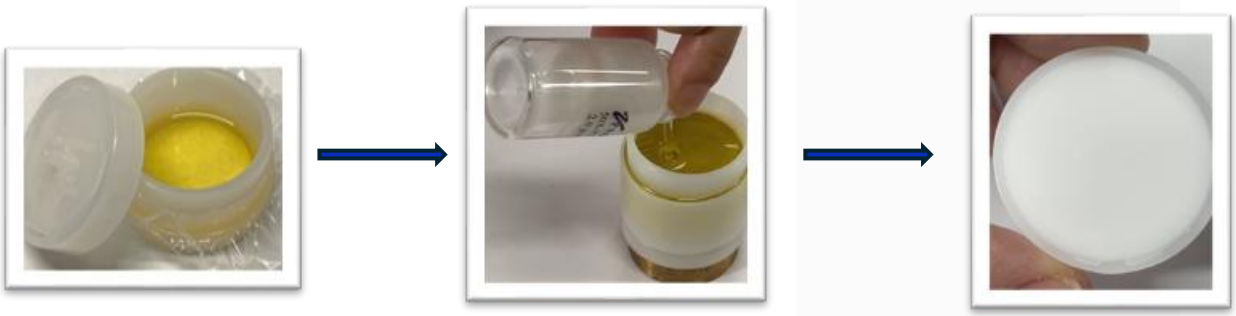
Wear metals analysis helps detect potential machine failures early by identifying elevated metal concentrations in engine and lubricating oils. Monitoring secondary metals like Mo, Mn, Hg, and Cd is crucial for engine performance and regulatory compliance.

Additionally, metals in lubricating oils, like Cu or Fe, may indicate worn components, while metals such as Na and Si often signal contamination. Common oil additives, including Zn and Ca, can be analyzed for depletion, which may contribute to wear. As metal content in oils changes over time, their properties degrade, making timely replacement essential.

Cost Savings from Wear Metals Analysis by XRF

X-ray fluorescence (XRF) is a non-destructive, rapid, and multi-elemental technique that offers several financial advantages:

- **Minimal sample prep** reduces labor and turnaround time.
- **Oil solidification** – oil samples can be solidified with wax blends (XRF Oil Solidification Wax Mixes | VPREP CORP) and analyzed under vacuum
- **No helium required** – solidified oil samples can be analyzed under vacuum, eliminating the need for expensive helium
- **On-site analysis** with benchtop units cuts down on lab outsourcing costs
- **Early detection of wear metals** (like Fe, Cu, Pb, Ni) helps prevent catastrophic equipment failures, saving thousands in unplanned downtime and repairs.
- **Trend monitoring** allows for optimized oil change intervals, reducing waste and extending lubricant life.



VPREP CONSULTING SERVICES

VPrep specializes in guiding customers with selecting the most suitable XRF system for their specific analytical needs. Leveraging their extensive knowledge of XRF technology and applications, Glenn and Thanh work closely with clients to identify systems that meet performance expectations, budget constraints, and sample types—whether for wear metals, regulatory needs, or high-volume testing environments. Their support goes beyond equipment selection, offering practical guidance with method development and system setup to ensure consistently accurate, reproducible results.

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