

# Marine Oil Analysis

Reliability for Marine Machinery

## Marine Oil Analysis

WEARCHECK MARINE OIL ANALYSIS PROVIDES A COMPREHENSIVE VIEW OF THE STATE OF YOUR LUBRICATED MACHINERY PROVIDING MAXIMUM MACHINE AVAILABILITY AND THE PEACE-OF-MIND THAT COMES WITH IMPROVED RELIABILITY.



### OVERVIEW

- Extension in mandated machine overhaul periods.
- Reduction in unscheduled downtime.
- Effective maintenance scheduling.
- Improved equipment reliability.
- Reduction in maintenance costs.
- Maximization of oil change out intervals.
- Minimization of installation errors.

### BENEFITS

**Your primary concern as a business is to be profitable.** All too often, these days, this requires an increase in profit through a reduction in costs. A well-run oil analysis program as part of your reliability program will achieve a substantial reduction in maintenance costs. In accordance with marine regulations, adding oil analysis to your routine maintenance extends the time between mandated equipment overhauls. WearCheck's oil and wear particle analysis packages offer you condition monitoring for your marine systems. WearCheck offers three levels of analysis, from basic to advanced test kits, as well as a blended program to meet your condition monitoring requirements.

**WearCheck's oil and wear particle analysis packages** cover all three areas of analysis. An assessment of the oil condition reveals whether the system oil is ready to be changed, or if it is fit for further service. Detection of ingressed contaminants from the marine environment, including sea water, and dirt alerts you in time to perform filtration service, saving the oil and avoiding unnecessary wear. When the oil condition and contamination is reduced by routine monitoring, system wear will be minimized. WearCheck's analysis can detect subtle changes in the levels of wear metals present in the system oil. Failures due to worn out components can be avoided long before those components are worn out of specification.

**After you have taken the sample, you simply** fill out an information sheet, or scan the sample bottle with the mobile app, and submit it with your oil sample to the WearCheck laboratory. Once the sample is received several tests are performed to assess the conditions of the component. Once complete you receive a detailed oil sample report with a concise diagnosis and clear recommendations by email, through the mobile app, or integrated into your CMMS.

**WearCheck's Oil and Wear Particle Analysis** is being effectively used today for a broad range of marine equipment, operating in a wide variety of industries including marine transport, off-shore platforms and FPSOs, and military and government marine vessels.











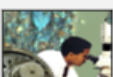
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Test	Test Method	Description	MAR I	MAR II	MAR III	MAR V
	ICP Analysis ASTM D5185	Determines the parts per million (ppm) of all wear metals (Fe, Cr, Ni, Pb, Cu...), contaminants (Si, Na, K...), and additives (Ca, P, Zn, Mg, Mo...).	●	●	●	●
	Viscosity ASTM D445/D7279	Determine the viscosity of the oil at 40°C (non-engine), or 100°C (engine) to determine if oil is still within specification. High viscosity can indicate oxidation, low viscosity can indicate contamination, improper make-up oil.	●	●	●	●
	Visual Screen WC Method	A picture of both the oil color/clarity and the bottom of the sample bottle are taken, and any level of contamination, visual oil problems or visible wear debris of the oil is recorded.	●	●	●	●
	Acid Number ASTM D664/D974/D8045	Determines overall acidity (AN) of the oil which is an indication of degradation. Single best test to determine change-out interval. AN for non-engine oil samples.		○	○	✓
	Base Number ASTM D2896/D4739	Determines remaining alkalinity (BN) of the oil which is an indication of degradation. Single best test to determine change-out interval. BN test is for engine oil samples.		○	○	✓
	Water Content ASTM D6304	Determines level of moisture or water contamination in the oil.		○	○	✓
	Particle Count ASTM D7647	Determine cleanliness levels of oil to ISO4406:1999. High particle count levels can indicate gross contaminant ingress, wear, filter by-pass or all of these issues.		○	○	✓
	PQ Index ASTM D8184	Provide a rapid indication of metallic debris in an oil sample. Detect ferrous wear debris that may be missed by spectrometric analysis.		○	○	✓
	Ferrography ASTM D7690	A detailed morphological analysis of the wear debris particles suspended in the oil. A-Ferr can determine the type of wear process and cause of wear in a lubricated system.			●	✓

- - Test included with test package.
- - Two (2) of the following test(s) included with this test package.
- ✓ - The actual tests carried out are based on the system type, lubricant and capacity.



**WearCheck Marine Oil Analysis includes** everything to set-up a complete oil analysis program. When you purchase a WearCheck Marine oil analysis program you will receive the necessary sample kits. All WearCheck oil analysis programs include laboratory testing, sample diagnosis and recommendations, sample report, and access to our patented WebCheck™ system to manage your oil analysis program.

*WearCheck offers additional programs for mobile and industrial equipment, aviation, mining, fuels, coolants, filters, transformer fluids, thermal oils and Advanced Oil Monitoring for turbines.*



**THE LEADER IN OIL ANALYSIS**

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