



BRINGING A NEW GENERATION
OF SERVICE AND TECHNOLOGY TO
FLUID ANALYSIS



NEW ADVANCEMENTS IN AN OLD SCIENCE

ONE PROGRAM, MANY BENEFITS

By offering clear, analytical data and professional recommendations, the Labcheck Next Generation oil analysis program can help you:

- Identify and measure lubricant conditions and contamination
- Assess equipment conditions
- Prevent breakdowns
- Maximize equipment uptime
- Maximize component lifespan
- Reduce fuel and oil consumption
- Decrease operational costs
- Eliminate unnecessary overhauls, in-service failures, and field repairs
- Establish optimal drain and service schedules



For generations now, used oil analysis has helped enhance the performance and extend the lifespan of critical machinery around the globe. Today, it's the most widely used form of proactive maintenance technology in the world. And it's easy to see why: Monitoring lubricant conditions within the internal environment

of machinery is the single-most cost-effective method for extending lubricant drain intervals, preventing catastrophic failure, and increasing the lifespan of vital equipment. The new advancements offered by Castrol's Labcheck Next Generation can readily enhance these benefits.



WHO CAN BENEFIT FROM LABCHECK NEXT GENERATION?

Virtually any piece of heavy duty equipment that has a lubricating system is a candidate for oil analysis. In particular,

all service and maintenance managers, as well as on-road and off-road fleet managers, will see substantial benefits from the new tools and features engineered into Castrol's Labcheck Next Generation.





LABCHECK NEXT GENERATION: A NEW GENERATION OF SERVICE, PERFORMANCE, AND INNOVATION



Labcheck Next Generation represents the future of oil analysis technology. It's new, it's innovative, and it's here. Redesigned with easy-to-use features and helpful shortcuts, Labcheck Next Generation is the most advanced, most intuitive program in the industry.

At the heart of this new program is our cloud-based application that provides the tools and technology you need to get accurate test results and actionable data faster and easier than ever before. At Castrol, our mission is to provide the most comprehensive, most responsive oil analysis service in the industry. The development of this innovative new program — and the service representatives behind it — embody our renewed commitment to you, our customer. Everything in Labcheck Next Generation is designed to help you streamline your workload and simplify your job.

THE RIGHT INFORMATION, RIGHT AT YOUR FINGERTIPS

Labcheck Next Generation saves time and effort. Directly from the home page you can:

- Locate sample information using search fields
- Spot items that require immediate attention
- Chart samples by severity
- Track the number of samples from each worksite
- Review turnaround times
- Monitor first signs of critical wear





POWERFUL, FLEXIBLE, FAST

When it comes to managing the status of your equipment's lubricants, Labcheck Next Generation offers a whole-new level of productivity. Its enhanced features make it easy to:

- Customize your home page with moveable/removable elements
- Locate real-time and historical sample results using "Quick Search" functions
- Quickly view the status of any sample with our easy-to-read sample formats
- Download and send sample data as an email with additional maintenance feedback
- Create special "alerts" on critical units
- Use the enhanced graphing tools to select data from assorted criteria and create custom graphs — then incorporate them into reports
- Forecast and predict potential problems using the versatile new trending tools
- Customize alarm limits to meet your specific criteria
- Customize terminology to match your company's unique business terms
- Use the hierarchy data structure to organize information from the worksite level, to the unit level, to the compartment level
- Create compartment comparisons across an entire fleet of equipment
- Manage, update, move, and even rename individual pieces of equipment
- Use the historical data records to identify where a unit has been and what samples were taken at previous locations
- When the unit moves to a new worksite, all samples taken at previous locations move with it — eliminating data fragmentation
- Use the new reporting tools to make the task of generating reports easier and faster
- Display reports in PDF formats that can be emailed, printed, or saved
- Determine how reports are generated in terms of data content and how they are sent out — either as an email attachment, jpg file, or hard copy
- Use the convenient online label feature to generate one or multiple Avery Labels with optional bar code functionality
- Add, modify, or delete users (and user groups). Grant user access to data and then control what can be done with the gathered data
- Create specialized Program Management and Summary Reports to help manage and control your oil sampling program. These reports compile information on Critical Conditions, Condition Analysis Statistics, Sampling Summaries, and other factors



ONLY ONE COMPANY PASSED OUR LAB TEST



Building a peerless oil analysis program would be impossible without the services of a world-class lab. In its pursuit of excellence, Castrol looked at many laboratories, yet only one met its standards. Analysts, Incorporated. Why Analysts? Because their uncompromising standards, meticulous lab work, and exceptional turnaround times give users the accurate results they require when they need them.

In truth, Analysts, Inc. is more than just an industry pioneer. For the past five decades, they've been a leader in the advancement of oil analysis innovation and excellence. Today, Analysts is a recognized leader in providing fluid-diagnostic evaluations and maintenance solutions for major clients around the world.

WHEN YOU'RE LOOKING FOR AN EXCEPTIONAL LAB, HERE'S WHAT TO LOOK FOR

EXPERIENCE

Analysts, Inc. was founded in 1960. With over 50 years of experience, they've led the industry in developing innovations in testing, analysis, and service.

EQUIPMENT

Analysts operates five laboratories in the U.S., all equipped with today's most advanced instruments. Many are automated and interface directly with the lab's computer system to ensure accurate and rapid turnaround service.

STAFF

Accurate testing begins with a well-trained staff — and more of Analysts staff members are STLE Certified personnel than any other commercial oil analysis lab.

QUALITY CONTROL

Analysts has created one of the strongest registered ISO 17025 quality programs in oil analysis. Their quality-assurance program meets the requirements of 10 CFR 50, Appendix B — the federal specification for quality programs in nuclear power plants.

SERVICE

Analysts' exceptional documentation, training, accuracy, and follow-up have established them as the industry's recognized leader in quality and service.

RAPID TURNAROUND

Analysts' average turnaround time is 24 hours or less for routine samples. Over 80% of the samples they receive are completed the same day they arrive.

RESPONSIVE ACTION

When critical conditions are detected, customers are notified immediately. Sample reports are available online the moment they are completed. Tests that indicate the need for a major inspection are double-checked prior to your notification. Customers can receive sample results online or by email alerts.



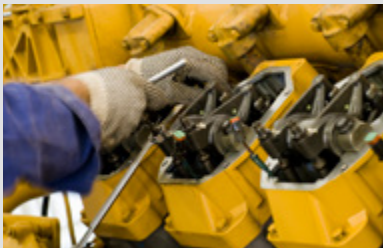
INNOVATIVE TESTING, COMPREHENSIVE SERVICE



Labcheck Next Generation offers a full array of tests, all performed by our lab partner, Analysts, Inc. These tests are designed to measure the physical properties of lubricants and fluids in heavy duty equipment. The cornerstone of this service is our wear metals test, which offers spectrochemical analysis of 21 metals that may be present in lubricants. Detecting these metallic elements can help identify corrosion and component wear metals, dirt contamination, coolant additives, and oil additives.

LABCHECK NEXT GENERATION CORE TESTS

Along with identifying fluid properties and detecting contaminants, our core tests provide an overall picture of the health of your equipment. Our seven core tests include:



WEAR METALS

Wear metals are tested to help locate premature wear and component risk. Labcheck Next Generation wear metal tests look for an abnormally high presence of silver (Ag), aluminum (Al), chromium (Cr), copper (Cu), iron (Fe), molybdenum (Mo), nickel (Ni), lead (Pb), tin (Sn) and other metallic elements—monitoring a total of 21 distinct metals.

CONTAMINANT METALS

Contaminant metals are monitored in each sample to detect contamination of the fluid in specific compartments. Fluid contamination can cause components to lose efficiency.

VISCOSITY

Viscosity is tested to detect a change in the oil's fluid properties. High viscosity promotes overheating in equipment, restricted oil flow, accelerated wear, impeded low-temperature operation, increased friction, and increased fuel/power consumption. Low viscosity promotes overheating, metal-to-metal contact, accelerated wear and increased lubricant leakage. Changes in viscosity can be the result of other problems in the sampled compartment.

FUEL DILUTION

Used oil is tested for the presence of unburned fuel. Using oil diluted by fuel can lead to rapid and catastrophic component failure due to reduced viscosity and film strength, as well as increased wear, and the possibility of a fire hazard.

SOOT

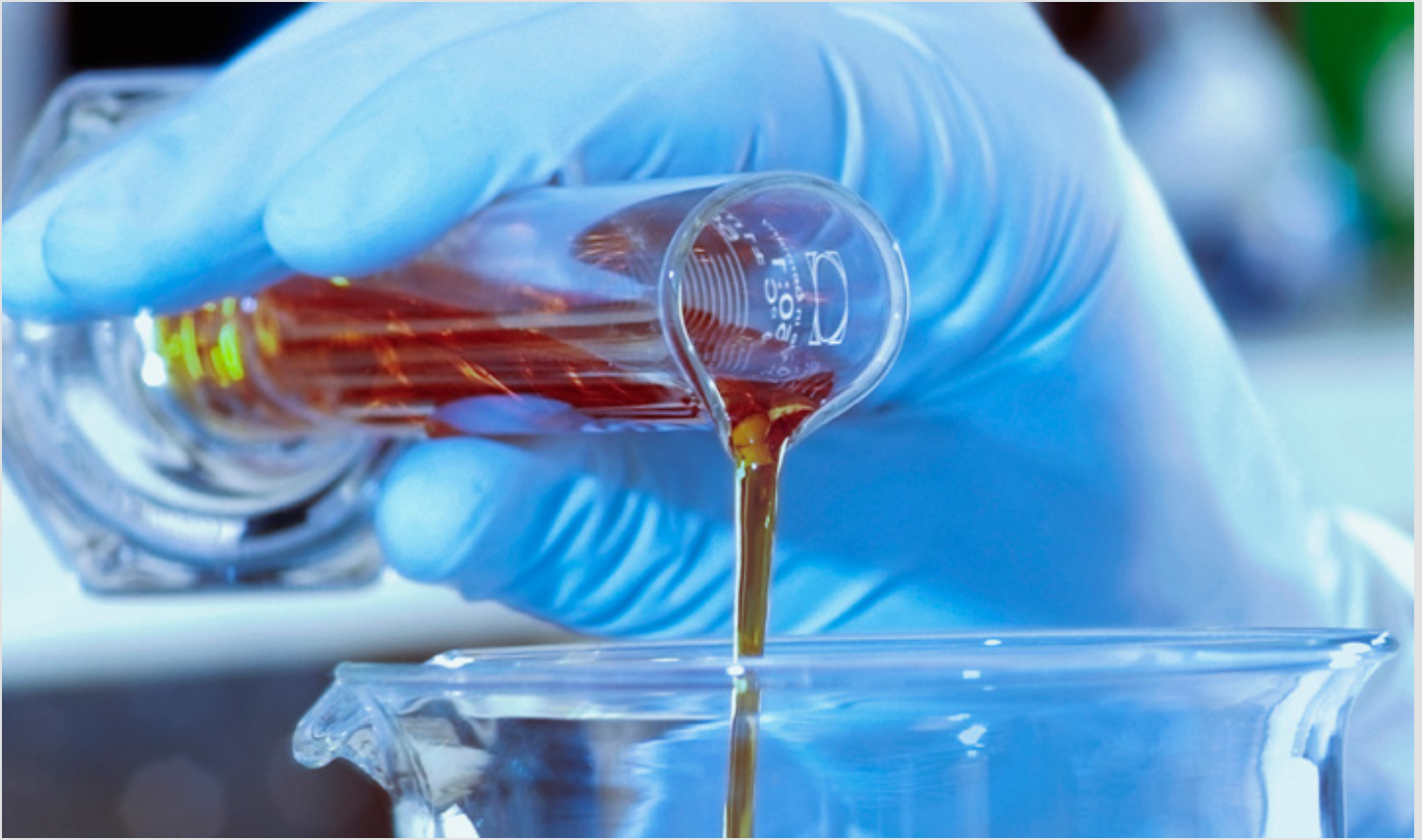
Soot can cause a host of problems, including poor engine performance, decreased fuel economy, increased wear, shortened fluid life, deposit and sludge formation, clogged filters, and increased operating costs. This test measures the soot content of used engine oils and flags every sample containing 5% soot or higher.

GLYCOL (ANTIFREEZE)

Antifreeze in any compartment other than the cooling system is a critical problem and can lead to rapid and catastrophic component failure. This test looks for and reports the presence of glycol in components.

WATER

This test looks for the presence of water, performing moisture checks for coolant leaks or condensation formation. Water contamination can promote acid formation, which can cause components to lose efficiency.



LABCHECK NEXT GENERATION OPTIONAL TESTS

When specific problems are detected, more detailed information may be required. Labcheck Next Generation “Optional” tests provide these details. These tests include:

OXIDATION & NITRATION

Excessive oxidation can cause increased wear, decreased engine performance, shortened equipment life, deposits, oil-filter plugging, increased oil viscosity, corrosion of metal parts, increased acidity in oil, and restricted oil flow. Heat and oxygen in oil can cause it to break down. Low crankcase oil temperatures accelerate the rate of nitration. By-products cause accelerated oil thickening, formation of acidic by-products, increased cylinder and valve train wear, combustion-area deposits, increased acidity in oil, and accelerated sludge formation. Our oxidation & nitration test looks for evidence of all these elements, including the presence of nitrogen by-products, which can accelerate oil breakdown.

ACID NUMBER

Increases in the acid number of a fluid may be caused by oxidation, nitration, or contamination. The acid number can determine the serviceability of a lubricant in specific applications. A high acid number may indicate corrosion of metallic components, oxidation, oil degradation, and additive depletion.

BASE NUMBER

Engine oil usually begins with a relatively high base number that decreases during use—this is an important factor in establishing oil drain intervals. By monitoring the base number, the potential for oil degradation, increased wear, and corrosion of metal parts can be detected.

PARTICLE COUNTING (HYDRAULIC, TURBINE, AND TRANSMISSION FLUIDS)

This test measures the cleanliness of an oil by determining the level of contaminants. Utilizing two extremely accurate methods, particles over two microns in size can be detected. By closely monitoring the particle size and count in a fluid, maintenance professionals can detect wear-causing abrasion at the onset and correct conditions that can cause the level of particulate matter to increase.

FERROGRAPHY

This test quantifies larger particles that cannot be seen by standard used oil analysis equipment and can correlate them to a problem in the system. Ferrography is typically run for forensic investigative measures to identify the origin and nature of wear or failure mode.

LABCHECK NEXT GENERATION TEST PACKAGES

Labcheck Next Generation also offers standardized “packages” or combinations of routinely performed tests. These consist of tests that the lab can perform in volume, so significant savings are realized when a test “package” is selected. Your Castrol sales rep can assist you in selecting the appropriate combination of tests when you begin your program. The following charts outline Labcheck Next Generation test packages.

ENGINE		TESTS										
PACKAGE	DESCRIPTION	METALS	FD	SOOT	OX	NTR	V100	V GRADE	W%	GLY	TBN 4739	LEMS
9904EB	Engine Basic	•	•	•	•	•	•	•	•	•		
9904ES	Engine Standard	•	•	•	•	•	•	•	•	•	•	
9904EP	Engine Premium	•	•		•	•	•	•	•	•	•	•

NON-ENGINE		TESTS										
PACKAGE	DESCRIPTION	METALS	V100	V40	V GRADE	W%	GLY	TAN	PQI			
9904NEB	Non-Engine Basic	•	•*	•*	•	•	•					
9904NES	Non-Engine Standard	•	•*	•*	•	•	•	•				
9904NEP	Non-Engine Premium	•	•*	•*	•	•	•	•	•			

HYDRAULIC		TESTS										
PACKAGE	DESCRIPTION	METALS	V100	V40	V GRADE	W%	TAN	PC	KF			
9904HYB	Hydraulic Basic	•	•*	•*	•	•						
9904HYS	Hydraulic Standard	•	•*	•*	•	•	•					
9904HYP	Hydraulic Premium	•	•*	•*	•		•	•	•			

NATURAL GAS ENGINE		TESTS										
PACKAGE	DESCRIPTION	METALS	OX	NTR	V100	V GRADE	W%	GLY	TAN	TBN 2896		
9904NGB	NGE Basic	•	•	•	•	•	•	•				
9904NGS	NGE Standard	•	•	•	•	•	•	•	•			
9904NGP	NGE Premium	•	•	•	•	•	•	•	•	•		

* Either V100 or V40 will be run based on a fluid’s classification (SAE vs. ISO vs. AGMA)

Specialized testing for coolants and fuels is also available.

SPOT PROBLEMS, TAKE ACTION

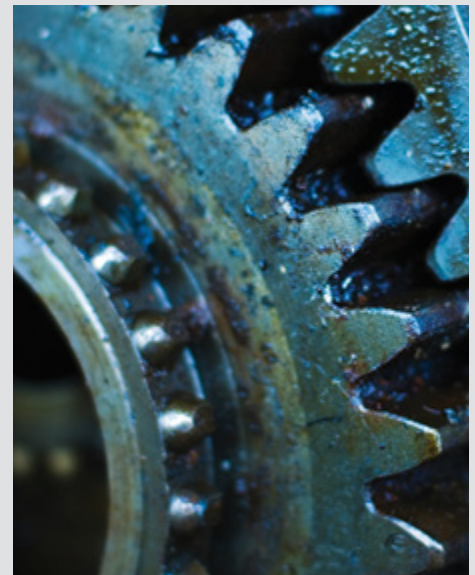
To facilitate prompt action on test results, Labcheck Next Generation offers online alerts and email alerts. For quick and easy assessment, sample conditions are separated into four classifications:

- ✔ **A (Normal)** No signs of excessive contamination or wear.

- 🔍 **B (Monitor)** Test results are outside acceptable ranges, but not serious enough to warrant immediate diagnostic action.

- ⚠ **C (Abnormal)** Contamination and/or lubricant wear is unsatisfactory but not critical. A confirming resample should be submitted—if resample analysis confirms abnormal rating, corrective actions are recommended.

- 🚨 **D (Critical)** Physical properties, contamination and/or component wear is serious enough to warrant immediate diagnostic and corrective action. If resample analysis confirms the critical rating, recommendations are provided to avoid long-term damage or component failure.





AT YOUR SERVICE



MAKE LABCHECK NEXT GENERATION PART OF YOUR LONG-TERM MAINTENANCE PROGRAM

If you manage a maintenance operation or a fleet of heavy-duty equipment, the Labcheck Next Generation used oil analysis program can potentially save you time, energy and money — lots of money. If you're ready to unleash the power of Labcheck Next Generation, give us a call and we'll help you get started.

GETTING STARTED IS EASY

Get in touch with one of our knowledgeable sales representatives by contacting Castrol toll-free at **888-CASTROL (227-8765)**.

FOR TECHNICAL SUPPORT

The Castrol Labcheck Support Desk provides industry-leading program and technical support. The support desk can be reached toll-free at **866-LABCHECK (522-2432)** from 7:00 am - 6:30 pm CST.

**REDUCE YOUR COSTS
AND MAXIMIZE YOUR
EQUIPMENT LIFE WITH
CASTROL LABCHECK
NEXT GENERATION**







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