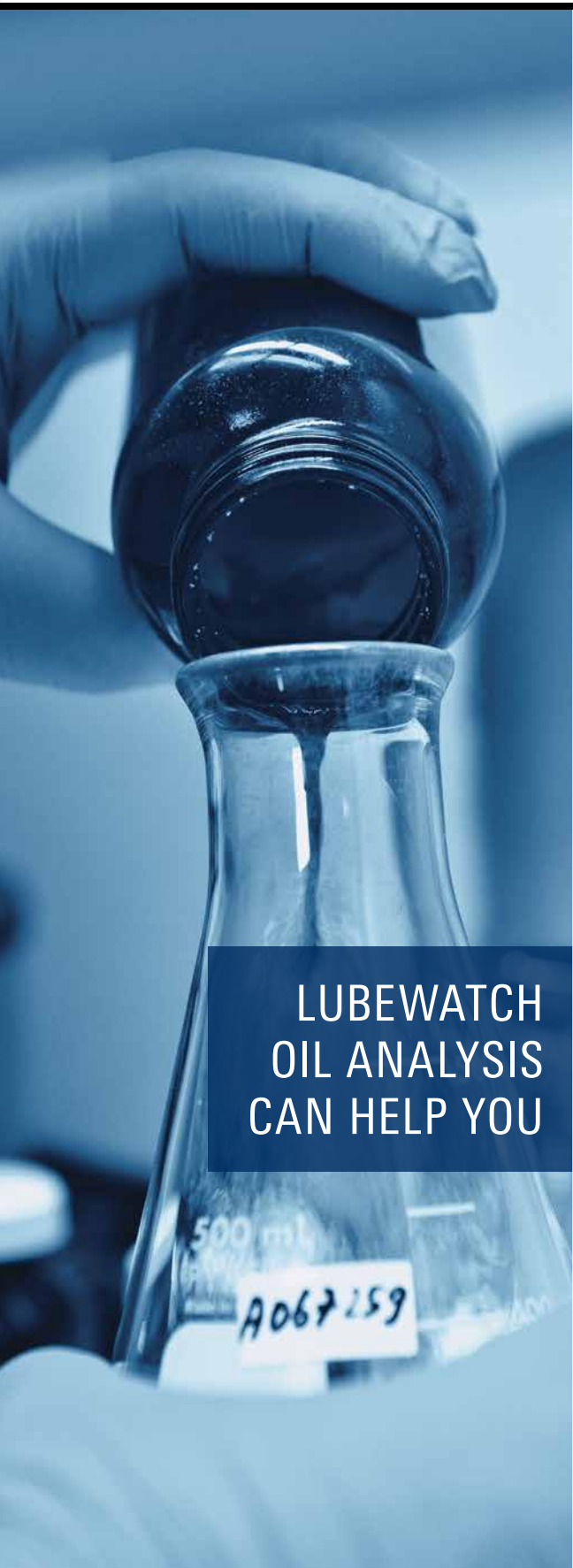




OIL ANALYSIS PROGRAMME OVERVIEW

LUBEWATCH®

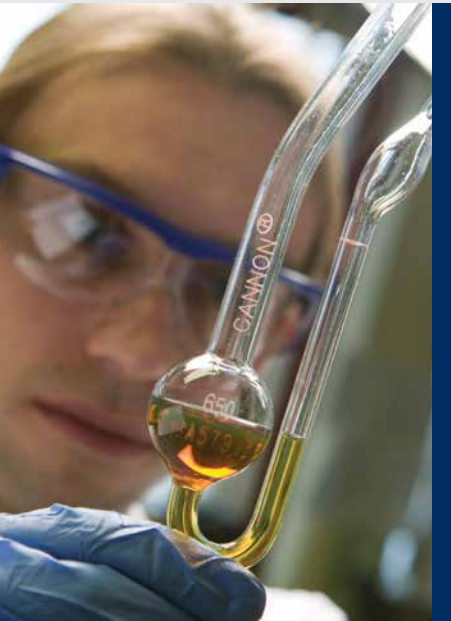


LUBEWATCH
OIL ANALYSIS
CAN HELP YOU



RUN
BETTER
LONGER

LubeWatch®
Oil Analysis Program



Increased productivity and optimal equipment performance

LubeWatch® oil analysis enables you to track the performance of equipment that is the lifeblood of your business. By analysing oil samples on a regular basis, you can help optimise equipment life and oil replacement intervals, identify lubricant-related needs and understand the changing environment within a piece of equipment. This knowledge helps with the precise scheduling of maintenance work that can reduce downtime or even eliminate the risk of catastrophic failure.

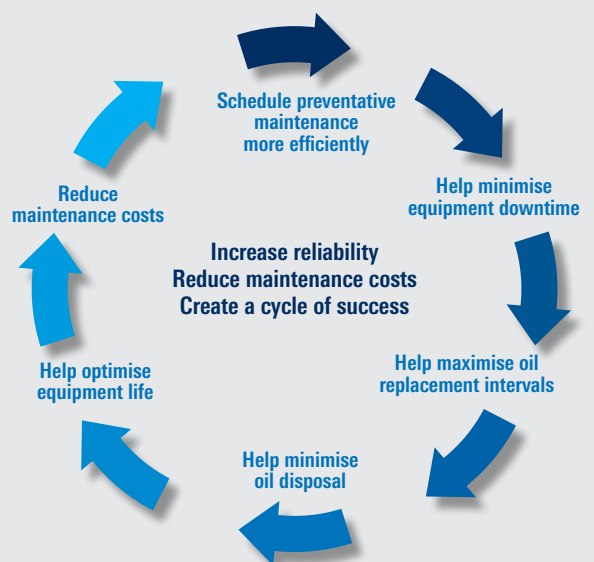
LubeWatch® Oil Analysis Program

The LubeWatch Oil Analysis Programme provides:

- Accurate results on five basic test packages and a wide variety of specialised testing procedures.
- Reliable interpretation of test results and actionable recommendations based on the data.
- 48-hour turnaround of tests and analyses indicating abnormal or critical steps provided by e-mail or accessible online.
- Advanced technical services including component failure and/or wear particle analysis.
- Expert training and in-field advice and support.
- Cost-effective standard and speciality tests.
- Added assurance of oil and system integrity when running on an extended oil drain interval programme.






Chevron Reliability

The RBL™ Programme is our commitment of business support and reliability – Chevron’s lubrication expertise combined with superior products and a tailored service programme work together to help your business Run Better Longer.



STANDARD TEST PACKAGES AND SPECIALITY TESTS

LubeWatch simplifies the process of testing by creating standard test packages for frequent, typical applications. **There are five test packages for standard used oil analysis.**

C1: LUBRICATION BASIC	METHOD	
	Viscosity 40°C or 100°C* Trace elements Water content Viscosity Index	ASTM D445 ASTM D5185 crackle^ ASTM D2270
C2: DIESEL CRANKCASE	METHOD	
	Viscosity at 100°C Trace elements Water content Glycol Fuel dilution Soot content Oxidation / Nitration	ASTM D445 ASTM D5185 crackle^ ASTM D2982 GC FTIR FTIR
C3: GAS ENGINE OILS	METHOD	
	Viscosity 40°C Viscosity 100°C Trace elements Water content Oxidation Nitration Acid Number Base Number Glycol Soot ipH SAN~	ASTM D445 ASTM D445 ASTM D5185 crackle^ FTIR FTIR ASTM D664 ASTM D2896 ASTM D2982 FTIR ASTM D7946 ASTM D664
C4: INDUSTRIAL OILS	METHOD	
	Viscosity 40°C or 100°C* Trace elements Water content Appearance Filtration residue 0,8 µ Particle Quantifier†	ASTM D445 ASTM D5185 crackle^ IHM ASTM D4055
C5: TURBINE OILS*	METHOD	
	Viscosity 40°C Trace elements Water content Particle count Total Acid Number Appearance	ASTM D445 ASTM D5185 Karl Fisher ISO 4406(99) ASTM D664 IHM

* 40°C for ISO, 100°C for SAE grades

^ If positive: Karl Fisher

† Gear oils & hydraulic oils

‡ Additional turbine oil tests are available

~ This test is performed only in cases when ipH is low (<4)

Other test packages and individual tests are available.

Please contact your Chevron representative or Texaco® distributor for details.

SUGGESTED SAMPLING FREQUENCY

Except for special circumstances, where there is a good reason to believe that a potential problem could exist (such as accidental contamination), the number of samples submitted for analysis per piece of equipment should be restricted to those that are technically necessary and economically justified.

General guidelines for the sampling of propulsion machinery and auxiliary equipment are given in the tables below, unless specified differently by the OEM.

ON- AND OFF-HIGHWAY: Agriculture, Automotive, Construction, Forestry, Public Transport, Mining & Quarrying, Railways, Truck & Bus		
EQUIPMENT TYPE	HOURS	MILES/KM
Heavy duty diesel engines	250 - 500 hours	20,000 - 60,000 miles 30,000 - 100,000 km
Passenger car engines (both petrol and diesel)	Once a year	10,000 miles / 15,000 km
Transmissions	300 hours	20,000 miles / 30,000 km
Gears, differentials and final drives	300 hours	20,000 miles / 30,000 km
Hydraulics	300 hours	20,000 miles / 30,000 km

MANUFACTURING & PROCESSING; INLAND MARINE: Cement, Food & Beverage, Marine Equipment, Natural Gas Distribution, Oil & Gas Exploration, Power Generation, Pulp & Paper, Sugar Mills		
EQUIPMENT TYPE	NORMAL USE	INTERMITTENT USE
Heavy duty diesel engines	Monthly; 500 hours	Quarterly
Natural gas engines	Monthly; 500 hours	Quarterly
Gas turbines	Monthly; 500 hours	Quarterly
Steam turbines	Bi-monthly	Quarterly
Air / Gas compressors	Monthly; 500 hours	Quarterly
Refrigeration compressors	Bi-monthly	Quarterly
Gears / Bearings	Bi-monthly	Quarterly
Hydraulics	Bi-monthly	Quarterly

Always follow the OEM recommendations for sampling, frequency of sampling and tests to be performed.



THE LUBEWATCH® PROCESS

Submitting oil or other lubricants for LubeWatch oil analysis is simple. Just set up an online account to send sample information directly to the Polaris laboratory and order sampling kits directly through Chevron Business Point. After you've taken a sample, send it back to the lab in the pre-addressed LubeWatch envelope supplied.

Most sample tests will be completed within 48 hours of receipt. You can receive results via e-mail or access them online.

How to take good samples

Since LubeWatch Oil Analysis requires relatively small quantities of oil, we need to ensure that your samples are truly representative of a particular system or piece of equipment. The following steps will assist you in taking representative samples.

- Ensure that sample containers are clean, dry and free of possible contaminants.
- Establish a sample point for each piece of machinery, preferably a point where the oil is flowing steadily; always take the samples from the same sampling point.
- Take the sample when the machinery is running at optimal operating temperature, if at all possible.
- Before taking the sample, flush about one litre of oil from the sample point to allow for the removal of any entrapped water or debris.
- Fill the LubeWatch sample bottle at the sampling point.
- Close the sample bottle tightly and wipe off any excess oil from the outside of the bottle to avoid any contamination of other items during delivery to the laboratory.

Please note that the accuracy of test results is dependent on the quality of the sample, so please follow these steps carefully.

Submitting samples for testing

Sample information can now be submitted online. Pre-registering samples is the most efficient way to get samples logged and tested, reducing paperwork and minimising errors.

- First-time users need to set up an online account by contacting their Chevron representative; alternatively, email custserv@eoilreports.com for support.
- Complete the 'Component ID' and 'Date taken' fields on the QR coded section (A) of the Sample Label form supplied, and attach to the sample bottle; the same details should also be completed on the section of the form that will be retained for your records (B).
- Go to 'Sample Submission' on your account to send sample information online; if online access is not available, complete the right hand section of the Sample Label form (C), detach and submit with the sample.
- Ship your sample to the LubeWatch laboratory via a trackable delivery service to the address shown on the Sample Label form.

The image shows a 'COMBO' Sample Label form. It is divided into three main sections:

- Section A (Left):** 'ONLINE SUBMISSION INSTRUCTIONS'. It includes a QR code and instructions for submitting sample information online. A blue circle 'A' is placed over the QR code area.
- Section B (Middle):** 'Component ID' and 'Date Taken' fields. A blue circle 'B' is placed over the 'Component ID' field.
- Section C (Right):** 'LubeWatch Oil Analysis Program' form. It contains various fields for sample identification and analysis, including 'Sample Name', 'Date Taken', 'Component ID', 'Machine Type', 'Machine Model', 'Machine Age', 'Machine Hours', 'Machine Location', 'Machine Condition', 'Machine Usage', 'Machine Type', 'Machine Model', 'Machine Age', 'Machine Hours', 'Machine Location', 'Machine Condition', 'Machine Usage'. A blue circle 'C' is placed over the 'Date Taken' field.

ACHIEVING WORLD-CLASS PERFORMANCE

The best way to address the future is to have a firm grasp of the present. LubeWatch® is designed to help you achieve world-class performance through the RBL™ Programme by identifying your oil, fuel and equipment types, applications and special needs.

The information that you provide will help LubeWatch labs conduct appropriate tests to accurately evaluate the used oil samples and provide tailored recommendations to improve your overall equipment effectiveness. Therefore, it is important to thoroughly fill out a LubeWatch oil analysis request for all samples – particularly on the initial round.

Great care and attention to detail were brought to every aspect of the LubeWatch programme development and lab evaluation process, to bring greater value through accurate and insightful data interpretation. Once we've created a detailed profile of your work environment, we can start to utilise the full predictive powers of LubeWatch and build reliability into your day-to-day business.



REACH A NEW LEVEL OF RELIABILITY WITH THE RBL™ PROGRAMME

Reliability matters at every step of the value chain. Chevron specialists can help add even more value to your lubrication programme by providing expertise along with world-class products and targeted services – all working in sync to help you get the most out of your equipment and operations, time and time again.



To find out how to help your business
Run Better Longer, contact your Chevron
representative or Texaco® distributor.

