



GENUINE  
PRODUCTS

# Active Care Testing™

Cummins® Active Care Testing™ is key for monitoring your engines contaminant levels, our program can provide evidence of system weakness or malfunction such as faulty air filtration, coolant leaks, fuel dilution, and wear metals that can suggest engine damage.



ActiveCareTesting™

### Fuel Analysis Packages

Fuel quality can seriously affect the efficient operation of engines. By investigating the fuel, Cummins® can assist the end user to assess the quality of fuel as delivered from storage. We offer two levels of fuel analysis, ACT10 and ACT11.

#### ACT10 | Supply Min. 100mL

ACT10 is a screening test to determine if there is a problem with the fuel. Used in case of suspicion of excessive water contamination with particulate matter causing performance problems. It also measures bacterial/fungal growth that may also cause filter blockage and other problems.

TEST	METHOD
Appearance	ASTM D4176
Colour	ASTM D1500
Particle Count	ISO 4406
Water Content	ASTM D6304
Density	ASTM D4052
Biodiesel content / Infrared Scan	PE150
Bacterial / Fungal Growth	PE107

#### ACT11 | Supply Min. 250mL

ACT11 is a quality check for conformance to much of the specification. It generally provides a definitive conclusion on the fuels fitness for use. The analysis determines the fuel quality when sourcing causes of performance problems (low power, smoking, component damage, etc.). It indicates poor fuel quality due to contamination by light or heavy grade products such as kerosene, petrol, solvents, wax, oil etc

TEST	METHOD
Appearance	ASTM D4176
Colour	ASTM D1500
Particle Count	ISO 4406
Water Content	ASTM D6304
Density	ASTM D4052
Biodiesel content / Infrared Scan	PE150
Bacterial / Fungal Growth	PE107
Flash Point Closed Cup	ASTM D93
Distillation Range	ASTM D86
Cloud Point	ASTM D2500
Calculated Cetane Index	ASTM D4737

### Standard Test Packages

ACTWEL

#### Test packages with additional Total Acid Number Test (TAN)

ACTTANWEL

### Oil Analysis Packages

#### ICP ELEMENT ANALYSIS

TEST TYPE	PETROL ENGINE	DIESEL ENGINE	GAS ENGINE	HYDRAULIC	TRANS-MISSION	GEAR	WHEEL MOTORS	AIR COMP	FUEL	GREASE	ENGINE COOLANT
Al	■	■	■	■	■	■	■	■	■	■	■
Cr	■	■	■	■	■	■	■	■	■	■	■
Cu	■	■	■	■	■	■	■	■	■	■	■
Fe	■	■	■	■	■	■	■	■	■	■	■
Pb	■	■	■	■	■	■	■	■	■	■	■
Sn	■	■	■	■	■	■	■	■	■	■	■
Si	■	■	■	■	■	■	■	■	■	■	■
Mg	■	■	■	■	■	■	■	■	■	■	■
Mo	■	■	■	■	■	■	■	■	■	■	■
B	■	■	■	■	■	■	■	■	■	■	■
Na	■	■	■	■	■	■	■	■	■	■	■
K	■	■	■	■	■	■	■	■	■	■	■
Ca	■	■	■	■	■	■	■	■	■	■	■
Zn	■	■	■	■	■	■	■	■	■	■	■
P	■	■	■	■	■	■	■	■	■	■	■
Ni	■	■	■	■	■	■	■	■	■	■	■
Li										■	
Ti	■	■	■								

#### FTIR

TEST TYPE	PETROL ENGINE	DIESEL ENGINE	GAS ENGINE	HYDRAULIC	TRANS-MISSION	GEAR	WHEEL MOTORS	AIR COMP	FUEL	GREASE	ENGINE COOLANT
Water	■	■	■		■	■	■	■			
Soot		■									
Glycol	■	■	■								
Nitration	■	■	■								
Sulphation		■	■								
Oxidation		■		■	■	■	■	■			
TBN		■									

#### FTIR

TEST TYPE	PETROL ENGINE	DIESEL ENGINE	GAS ENGINE	HYDRAULIC	TRANS-MISSION	GEAR	WHEEL MOTORS	AIR COMP	FUEL	GREASE	ENGINE COOLANT
Visc @40	■		■	■	■	■	■	■	■		
Visc @100		■	■	■	■		■				
TAN			■		■		■	■	■		
TBN			■								
Dispersancy		■									
PQ Index	■	■	■	■	■	■	■	■	■	■	
ISO Cleanliness				■	■			■			
Moisture (KF)									■	■	
Visc Index			■								
Fuel GC	■	■									
Nitrite											■
Chloride											■
pH											■
TDS											■
Res. Alk											■
Conductivity											■
Glycol %											■



## Data Management and Cummins® Active Care Testing™ Online

Cummins® Active Care Testing™ offers a great deal of flexibility in managing fluid analysis data. The laboratory can transmit reports via email, provide access to a website to view and manage data, or send a data file that can be imported into third party software programs. The Cummins® Active Care Testing™ Online system provides flexibility in managing and querying test data and is easy to use. With Cummins® Active Care Testing™ Online, customers have direct entry into our real-time database of all samples processed by Cummins® Active Care Testing™ regardless of laboratory location.



### Key Features

- Modern look and design
- Dashboards that display key statistics at a glance
- Additional query capability for higher level hierarchies
- Tag items to build custom groups
- Flag favourite pages for easy access to frequently used functionality
- Ability to print test reports in batches
- Internet-based application, so data is available from wherever you are—review, email, and print sample reports at your convenience
- Online sample submission featuring a bar-coded label wizard for error-free lab sample entry, assurance of data integrity, and turnaround time transparency
- Real time tracking of sample progression at the click of a button—when samples have reached the lab, are being processed, are complete
- Ability to build and store custom reports
- Variety of test report formats available, and data is easily imported into other software programs—such as Excel
- Simple, one-step search function to quickly find sample data and statistics
- Multiple levels of security; authorization of access level confirmed before registration approved

The Cummins® Active Care Testing™ Online application has a full suite of management reports and data mining capabilities to assist with improving and managing the program. Searching for information based on a compartment type and/or other variables is easy and quick. Users have the ability to assess compartments by problem and testing thresholds to quickly identify the equipment for which maintenance action is needed. This application allows clients to review, email, print reports, print labels, and produce management reports. The system is easy to use and allows for numerous levels of access and data viewing permissions that are defined by the customer. Additional value is obtained by ensuring that the equipment makes, models, and other information are correctly entered into the system. Once equipment is pre-entered into the system, labels can be printed for submission, thereby reducing the effort and possibility for errors when submitting first-time samples. The Cummins® Active Care Testing™ Online-generated label allows users to track their samples from the point of receipt to testing completion. It also simplifies the data entry process and significantly diminishes the possibility for errors in the data entry process, as all information is downloaded from the bar code scan. Cummins® Active Care Testing™ Online is a powerful tool, yet easy to use. Training is provided on system navigation and label printing so as to familiarize you and your staff with the functions of this system. To access the Cummins® Active Care Testing™ Online, visit [www.activecaretesting.cummins.com.au](http://www.activecaretesting.cummins.com.au)

### Sampling instructions

#### Scheduled Intervals

Ideally, oil samples should be taken in a manner that is easily repeatable and effectively represents the actual condition of the oil in the equipment. Good sampling procedures ensure consistency and reliability of data. Oil samples must be taken on a regular preventive maintenance schedule. Do not take samples soon after an oil change, filter change, or after makeup oil has been added. Adding new oil dilutes the levels of contaminants and wear metals found, which may result in conditions appearing better than they actually are.

## General Guidelines for Taking a Quality Sample



Each sample drawn must be taken regularly from a single location in a system. Take samples during normal operating conditions, downstream of pumps, cylinders, bearings, and gearboxes and upstream from the filter. When obtaining a sample from a lubricated system, always have the oil hot and thoroughly mixed before sampling. When possible and safe, always take the sample while the machine is running.

- Make sure that the sample bottle is clean and free of any moisture before obtaining sample.
- When utilizing the vacuum pump method, make sure that sample is not obtained from the bottom of the oil compartment where sludge accumulates. Aim for the midpoint of the reservoir.
- Obtain samples during normal equipment operation or at least within 30 minutes after equipment is shut down. This is the best way to obtain a truly representative sample of conditions within a lubricated compartment or a machine compartment.
- Make sure that sample bottle and container are properly sealed before shipping.
- Fill out the sample information form correctly and completely.
- Ship sample to laboratory promptly to receive analysis results as soon as possible.

### Taking an Oil Sample Using the Valve Method



- 1 Unscrew dust cap from sample valve.
- 2 Depress the button on the sample valve.
- 3 Flush the oil line allowing several ounces to drain before taking the sample.
- 4 Place the empty sample bottle under the sample valve discharge opening.
- 5 Fill the sample bottle 3/4 full and release the sample valve.
- 6 Tighten the cap on the sample bottle to secure a tight seal.
- 7 Screw the dust cap back on the valve. Prepare for shipment.



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## Sample Pump Method



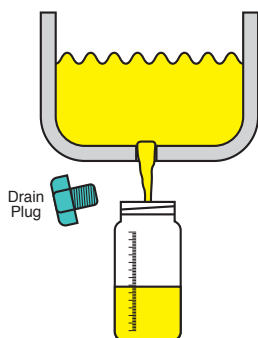
If taking an oil sample using the pump method, operate the equipment long enough to mix the oil thoroughly; bringing the oil to operating temperature is a good indication that the oil is adequately mixed. It is important that vacuum pumps are used with appropriate tubing. Make sure that new tubing is used for each sample in order to avoid cross contamination. Cut the tubing to the same length each time you sample. Avoid scraping the tubing along the sides or bottom of the tank or reservoir. Use this method with systems not equipped with sampling valves.

## Taking an Oil Sample Using the Pump Method



- 1 Measure and cut new tubing to the length of the dipstick. Tubing must reach half way into the depth of the oil (or long enough to reach the midpoint of the reservoir).
- 2 Insert the tubing through the head of the vacuum pump and tighten the retaining nut. The tubing should extend about 1/8 inch beyond the base of the vacuum pump head.
- 3 Install a new sampling bottle onto the vacuum pump and insert the end of the tubing into the oil – do not allow the tubing to touch the bottom of the compartment.
- 4 Pump the vacuum pump handle to create a vacuum. Hold the pump upright to avoid oil from contaminating the pump. If oil enters the pump, disassemble and clean it before taking the sample. Fill the oil sample bottle at least 3/4 full.
- 5 Remove the tubing from the compartment and dispose of it correctly. Do not reuse tubing. Remove the bottle from the vacuum pump and secure the cap on the bottle. Prepare for shipment.

## Drain Line Method



The drain line method is considered the least preferred method of sampling. If used, make sure that an ample amount of oil is drained before collecting a sample. The sludge, particles and water that settle to the bottom of a tank or reservoir provide poor and sometimes unreliable results.

### Taking an Oil Sample Using the Drain Method

- 1 Clean area around the drain plug to avoid sample contamination.
- 2 Allow ample amount of oil to flush through the oil pan drain hole.
- 3 Fill sample bottle 3/4 full.
- 4 Screw bottle cap on tightly. Wipe bottle clean and prepare for shipment.
- 5 Proper identification from each unit sample is crucial for tracking critical reports and unusual wear.

## Sample Identification Forms (SIF)

Each sample submitted to the designated laboratory should include a Sample Information Form (SIF). Keep in mind that the laboratory cannot perform accurate analysis unless they have all of the information required on the sample information form, properly filled out, and submitted with the sample. The SIF (Sample Information Form) is just as important as the sample itself. The data analyst, or evaluator, uses the form to determine what is normal, caution, abnormal, or severe for the component and lubricant based on component make and model, lube brand and type, length of time or miles on the sample, and any other information provided by the customer.

## Shipping Instructions

Ship all samples to the designated laboratory on the same day that the sample is taken. Be sure that all information is filled out correctly and completely on the SIF. Place the sample bottle and SIF in the shipping container provided, then place into prepaid mailing satchel, and ship to the designated laboratory. It is the shipper's responsibility to follow all applicable regulations related to proper packaging, labelling, and offering for shipment of fuel samples, which are regulated as hazardous materials. Please consult with your courier for more information. If you have any questions regarding the fuel packaging, please contact your Cummins® Active Care Testing™ representative on: 1300 289 669.

(KEEP FOR YOUR RECORDS)  
Customer File Sheet  
Unit or Vehicle Number \_\_\_\_\_  
Date Mailed \_\_\_\_\_

"Cummins" sample makers will be replaced with unused makers if defective in materials, labeling or packaging, or if lost by us or any associated company, even though the replacement or other fault. Except for such replacement, the sale, processing or other handling of these samples for any purpose is without other warranty or liability.  
Note: An original numbered Equipment Information Form must be returned with each sample otherwise a charge will be made for the service.  
**Return this part with sample SIF**

**ActiveCareTesting™**  
ARN 42 006 332 949  
For Australia Phone: 1300 289 669 Fax: 1300 289 600  
For New Zealand Phone: 0800 289 669 Fax: 0800 289 600  
Email: 1300cummins@cummins.com

**EQUIPMENT INFORMATION FORM**

Unit/Vehicle Reg No. _____	Date Sample _____
Unit Make and Model _____	Serial No. _____
Compartment Name/Type _____	Total Machine km/h _____
Compartment Location _____	Compartment Hours _____
Diesel/Petrol/Natural Gas/Other (Circle one) _____	km/h on oil _____
Compartment Make _____	km/h since filter change _____
Compartment Model _____	Oil added (miles/km) _____
System Capacity _____ Litres _____	Was oil changed at this sample? Yes <input type="checkbox"/> No <input type="checkbox"/>
Oil Brand _____	Was filter changed? Yes <input type="checkbox"/> No <input type="checkbox"/>
Grade _____	PLEASE STATE PREVIOUS SIF or VHM _____
Job Site Location _____	
Recent Repairs/Comments _____	

**CUSTOMER DETAILS** Return address (please print or type)

Company _____	
Address _____	
State _____ Postcode _____	Email _____
Contact _____	
Phone No.: STD Area Code _____	Ext. _____
Mobile Phone No.: _____	
Fax No.: STD Area Code _____	

**IMPORTANT** See reverse side for sampling instructions

## Reference Guidelines

Many times, users that test their in-service lubricants will look at reports and ask "what do these tests mean?" Most routine analysis reports display similar test parameters for monitoring the condition of the operating equipment and the lubricant in service. This simple guideline will help explain the use and meaning behind the routine tests you are likely to see on an analysis report. Please note that this serves only as a guideline; the elements listed to not purport to include all possible resources.



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## Wear Metal Reference Guide

When trace elements are detected, the following areas could be responsible	ALUMINUM (Al)	CHROMIUM (Cr)	COPPER (Cu)	IRON (Fe)	LEAD (Pb)	NICKEL (Ni)	TIN (Sn)	SILVER (Ag)	TITANIUM (Ti)	VANADIUM (V)
BEARINGS	■	■	■	■	■	■	■	■		
BUSHINGS	■		■	■	■		■	■		
COMPRESSOR/ PISTON	■			■			■			
CLUTCH DISCS			■		■			■		
EGR	■									
GEARS		■		■		■				
HOUSING/ BLOCKS	■			■		■				
HYDRAULIC CYLINDERS	■	■	■	■	■		■			
HYDRAULIC PUMPS	■		■	■	■	■	■			
OIL COOLER	■		■				■	■		
PISTONS	■			■						
PISTONS SKIRT OVERLAY							■			
RINGS	■	■		■		■				
RUST				■						
SHAFTS		■		■		■			■	
THRUST PLATES	■		■		■		■			
THRUST WASHERS	■		■		■		■			
TURBINE BLADES									■	■
VALVE GUIDES/ STEM	■	■		■		■				
VALVE TRAINS		■				■			■	
WASHERS	■		■	■	■					

For additional information, FAQs and the product brochure, call Cummins® Support Centre.

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