

HEAVY PLANT & EQUIPMENT

Time is money so keep the wheels turning

TRIED. TESTED. TRUSTED.

FUELSTAT® provides rapid
detection of microbial
contamination in fuel





Is sending samples to a lab for microbial fuel testing worthwhile or economical?

Traditionally, diesel fuel testing methods have depended on fuel samples being sent to a specialist laboratory for analysis. The next step is a waiting period of up to 4-7 days, or longer to get the results.

Sending fuel samples to a lab is not simple at the best of times but especially in the often-remote locations in which this equipment usually operates. ASTM D6469 stresses that if a sample is to be tested for microbial contamination and cannot be tested on-site, it should be transported on ice and tested within 24hrs or the sample may no longer be a true representation of the environment from which it came. Delays cause varying results which may cause an increased risk to your asset.

- Why take the risk?...
- Why wait days to do what FUELSTAT® can do in minutes?

FUELSTAT® SOLUTION
TEST. RESULT. REPORT.
within 15 minutes



HEAVY PLANT & EQUIPMENT

Is your equipment at risk?

Whether its mining, construction or some other function using Heavy Equipment, often in remote locations with limited fuel supply options, time really is money. The sheer size of some of this equipment, and the cost of running them, means that they are usually transported to site, so a breakdown can lead to considerable recovery cost, reduced productivity, or expensive downtime.

Therefore, protecting the fuel that powers equipment should be a priority for any site, and this includes careful monitoring and management of microbial contamination (a.k.a diesel bug) because:

- **Diesel engines are at high risk of microbial contamination.** Modern diesel fuels always have at least some level of microbial contamination. And when fuel storage facilities are not sufficiently maintained, microbial contamination has more time to grow to dangerous levels.
- **Severe microbial contamination could mean disaster.** If microbial contamination grows quickly between tests, it can be transferred to equipment and stop them from working.
- **Traditional fuel tests are inconvenient.** Testing for microbial contamination usually involves hiring an external team, sending samples off-site, and waiting days for results.
- **Microbial contamination risks are often underestimated.** Many maintenance contractors do not realise how fast diesel bug grows, or the danger it presents.

The only way to have total confidence in fuel quality is with an appropriate fuel maintenance program that incorporates regular, accurate testing - so there is 0% room for error.



Why is heavy equipment at risk from microbial contamination?

Middle distillate fuels can be affected by contaminants like water, particulates (e.g. rust and dust), and microbes.

Microbial contamination begins with the presence of any water in the fuel, which gets into fuel systems largely through condensation and grows in the space between water and fuel. Diesel fuel is particularly at risk of microbial contamination due to its properties. In the last 10+ years Fatty Acid Methyl Ester (FAME), also called biofuel, has been added to diesel. FAME is susceptible to microbial contamination because it attracts and holds water.

MICROBIAL CONTAMINATION IN FUEL

If you're a user or supplier of diesel fuels, microbial contamination can pose a serious threat to your business.

Once this microbial contamination starts to develop, it can get out of control quickly. The micro-organisms produce a thick, slimy material called biomass, which clogs engines and stops them from working properly. Biomass can also influence metal corrosion, causing permanent damage to tanks and mechanical parts. If left for a prolonged period of time without treatment, it can cause:

- Blocked filters
- Increased injector wear
- Increased fuel consumption
- Engine failures
- Fuel starvation
- Corrosion and tank leakage



HOW CAN YOU DEFEND YOUR ASSETS AGAINST MICROBIAL CONTAMINATION?

There is no way to completely prevent microbes from entering fuel. These microbes are all around us, in the air and on surfaces, and can enter the fuel in numerous ways once it leaves the refinery. Most importantly, even the well-maintained fuel delivery systems will experience condensation - and when water gets into fuel, microbes do too. If severe microbial contamination is discovered in your fuel, it can be treated with special fuel cleansers and biocides. However, this procedure can cost many thousands of dollars and usually requires taking your fuel and equipment out of action. To minimise the risks, there are three key activities you need to do:

1. Remove water from tanks
2. Store fuel correctly
3. **Test for fuel microbial contamination regularly...**

THE SOLUTION IS AS SIMPLE AS 1-2-3

FUELSTAT® PLUS

- The ultra-simple test that just requires **4 drops** of sample
- **15 minutes** to result as opposed to 4-7 days!
- **'Test at the tank'** technology - no laboratory required
- No requirement for additional **equipment** or **sterility measures**

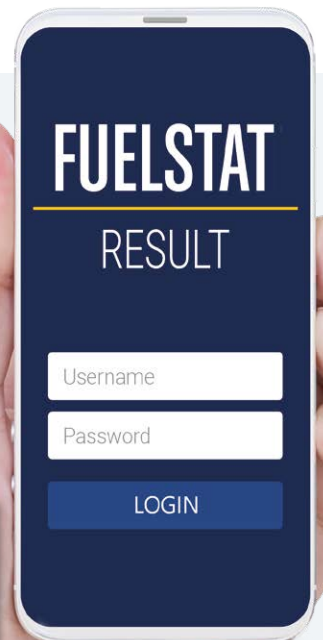


In critical times, you need a fast, convenient testing method - one that doesn't require multiple people to complete the process. Using FUELSTAT®, a single person can conduct tests at the tank after minimal training from our instructional videos. FUELSTAT® is based on immunoassay antibody tests. Just as a pregnancy test searches only for markers of human chorionic gonadotropin, FUELSTAT® only searches for the markers of bacteria and fungi that can grow in jet and diesel fuel and can potentially cause both operational downtime, corrosion and in worse case safety issues.

FUELSTAT® RESULT



- The easy to use app that gives **immediate visual verification** of result
- **Reduces risk** of misinterpretation
- No need for additional equipment other than a smartphone
- Fully **detailed report** can be instantly produced in PDF format



FUELSTAT®

ANALYSIS REPORT

Company name: Standard Address inputted From Portal

Registered User: Engineers Name

Address: Input from Portal Registered Address

Test date: 24-JAN-2019

Post code: From Portal

GPS location:

Country: United Kingdom

Fuelstat result number: 3.361

Customer reference: 124 - Portal Template

Printout date: 24-JAN-2019

Identity: Example Test

Bacteria: Negligible

Asset: Jet 1

Fungi: Heavy

Tank: Wing

Hormoconis resinae: Negligible

Fuel lot: 4

Overall result: Heavy

Fuelstat test lot: HR 2 411

Test method: ASTM D8070-16

Comments

Example test Report - Annual Maintenance Check

FUELSTAT® Result data interpretation and guidance

Alert level	Phase	Target antigen limits
Negligible	Fuel	Up to 150 µg/L
	Water	Up to 33 µg/ml
Negligible — Repeating test to confirm the result and increase the frequency of water drainage.		
Moderate	Fuel	Between 150–750 µg/L
	Water	Between 33–166 µg/ml
Moderate — Repeating test to confirm the result and increase the frequency of water drainage.		
Heavy	Fuel	Greater than 750 µg/L
	Water	Greater than 166 µg/ml
Heavy — Consider immediate treatment, such as increased water drainage, to reduce the risk of engine failure.		

Phone make: Apple

Portal version: 1.2.2

Phone model: iPhone 6s

Analysis approved by:

App version:

TRIED. TESTED. TRUSTED.

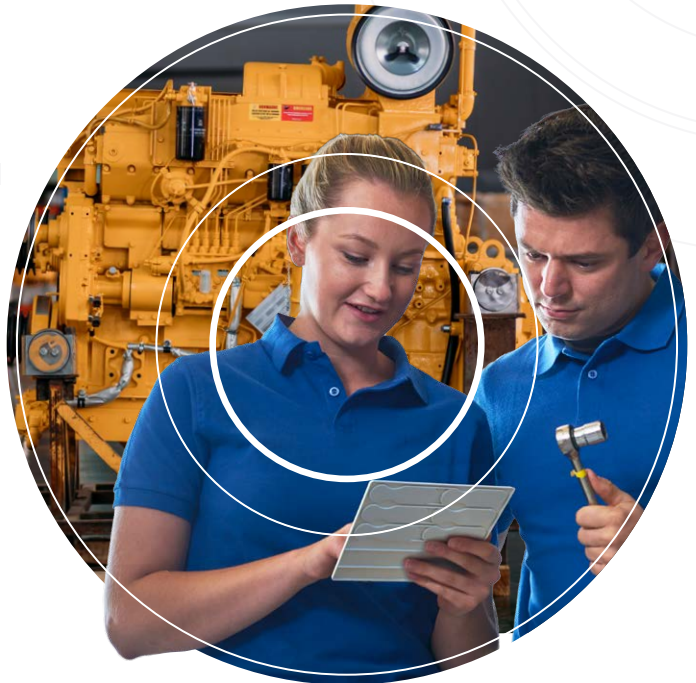
FUELSTAT®

Who we are:

FUELSTAT® fuel tests are developed, manufactured and marketed by Conidia Bioscience Ltd. Based in UK, Conidia Bioscience was founded in the early 2000's by experts in immunoassay techniques and holds the internationally patented intellectual property for FUELSTAT®.

Where to find us:

FUELSTAT® is distributed globally by a network of specialist distributors covering the major sectors. To arrange for a distributor to support you simply contact info@conidia.com.



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FUELSTAT® meets the ASTM
International D8070-16 Standard



FUELSTAT® is listed as an approved
product by Joint Inspection Group



FUELSTAT® is listed as a recommended
product by IATA. Conidia Bioscience is a
Strategic Partner with IATA

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