

# Backup Power Generation

Is your backup generator 100% ready for a power emergency?



## TRIED.TESTED.TRUSTED.

Andel FUELSTAT® provides rapid detection of microbial contamination in fuel

Protecting your assets. Protecting the environment.



## Andel FUELSTAT® – a quick, easy and reliable interim test for microbial contamination in stored diesel fuel

Contaminated fuel supplies can result in at best equipment not operating efficiently and at worst total engine failure.

In accordance with BSI 5410, diesel fuel for backup generators and boilers should be tested for a wide variety of contaminants. Andel provides 6-monthly testing for a range of problems that frequently occur in stored diesel fuel including:

- **Wear (metal particulates in the fuel)**
- **Particulate contamination (dirt and biofuel content)**
- **Microbial contamination**
- **Water**

Microbial contamination can occur in a matter of days or weeks and consequently it is advisable that stored fuel should be tested more frequently than the 6-monthly test. Andel FUELSTAT® provides a simple interim 'do it yourself' microbial test providing rapid and reliable results meaning you can test your fuel easily and as frequently as is deemed necessary.



## BACKUP POWER GENERATION

### Is your backup generator 100% ready for a power emergency?

In a power emergency, your generator fuel is just as important as the generator itself. And at times when power emergencies seem more likely – or have greater consequences – you need to be 100% sure your fuel is in good working condition.

That means carefully monitoring and managing microbial contamination known as the 'diesel bug' because:

- **Backup generators are at high risk of microbial contamination**

Modern diesel fuels always have at least some level of microbial contamination. If your fuel is not maintained correctly, contamination has more time to grow to dangerous levels.

- **Severe microbial contamination could mean disaster**

If contamination grows quickly between tests, it could potentially stop your generators working.

- **Traditional fuel tests are inconvenient**

Testing for contamination usually involves hiring an external team, sending samples off site, and waiting days for results.

- **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 your generators is with a fuel maintenance programme that incorporates regular, accurate testing, so there is 0% room for error.**

## WHY IS EMERGENCY GENERATOR DIESEL FUEL AT RISK?

Middle distillate fuels can be affected by contaminants like water, particulates (e.g. rust and dust), other fuels, and microbial contamination. Microbial contamination can enter through water droplets, which get into fuel systems largely through condensation and grow in 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 highly susceptible to microbial contamination because it attracts and holds water.

## MICROBIAL CONTAMINATION IN DIESEL FUEL

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

Once microbial contamination starts to develop it can quickly get out of control. The micro-organisms produce a thick, slimy material called biomass, which clogs engines and stops them from working properly. Biomass can 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 failure
- Fuel starvation
- Corrosion and tank leakage



## HOW CAN YOU DEFEND YOUR DIESEL GENERATOR AGAINST BIOLOGICAL CONTAMINATION?

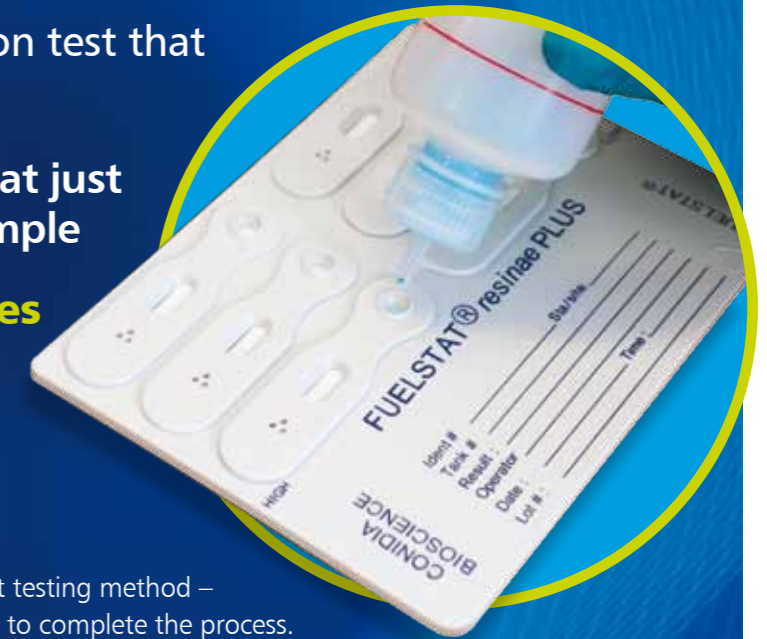
There is no way to completely prevent microbes from entering fuel. These microbes are all around us, in the air and on surfaces, and can enter the fuel in numerous ways once it leaves the refinery. Most importantly, even the well-maintained fuel delivery systems will experience condensation – and when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

- Remove water from tanks
- Store fuel correctly
- Test for fuel contamination regularly...

## THE SOLUTION – FUELSTAT® PLUS

The microbial contamination test that is as simple as 1-2-3:

1. The ultra-simple test that just requires **4 drops** of sample
2. Test result in **15 minutes**
3. **'Test at the tank'** technology – no laboratory required



In critical times, you need a fast, convenient testing method – one that does not require a team of people to complete the process. Using Andel FUELSTAT®, one person can conduct tests at the tank after minimal training. It works like a pregnancy test: just place droplets of the sample onto the test well and wait for the readout.



## 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**

For instant verification of the result, the free-to-download app, FUELSTAT® Result, will provide instant test verification on your smartphone and upload the results to the remote portal for storage and sharing with your management team.

FUELSTAT® ANALYSIS REPORT		
Company name: Standard Address Inputted from Portal/Registered User: Engineers Name	Test date: 24 Jan 2019	
Address: Input from Portal/Registered Address	GPS location:	
Post code: From Portal	Fuelstat result number: 3,363	
Country: United Kingdom	Printout date: 24 Jan 2019	
Customer reference: 124 - Portal Template		
Identity: Example test	Bacteria: <span style="color: green;">Negligible</span>	
Asset: jet 1	Fungi: <span style="color: red;">None</span>	
Tank: Wing	Hydrocarbon resinsae: <span style="color: green;">Negligible</span>	
Fuel lot: 6	Overall result: <span style="color: red;">None</span>	
Fuelstat test lot: HR 2 411	Test method: ASTM D6079-05	
Comments		
Example test Report - Annual Maintenance Check		
FUELSTAT® Result data interpretation and guidance		
Alert level	Phase	Target antigen units
Negligible	Fuel	Up to 150 pg/ml
	Water	Up to 33 pg/ml
Moderate	Fuel	Between 150-750 pg/ml
	Water	Between 33-166 pg/ml
Heavy	Fuel	Greater than 750 pg/ml
	Water	Greater than 166 pg/ml
Phone make: Apple	Portal version: 1.2.2	
Phone model: iPhone 6s	Analysis approved by:	
App version:		

**TRIED. TESTED. TRUSTED.**

Andel provides consultation, design, manufacturing, installation and support services for four key specialist areas:

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For more information call +44 (0)1484 845 000

Head Office: Andel Ltd, New Mills, Brougham Road,  
Marsden, Huddersfield, West Yorkshire HD7 6AZ  
[help@andel.co.uk](mailto:help@andel.co.uk) [www.andel.co.uk](http://www.andel.co.uk)

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