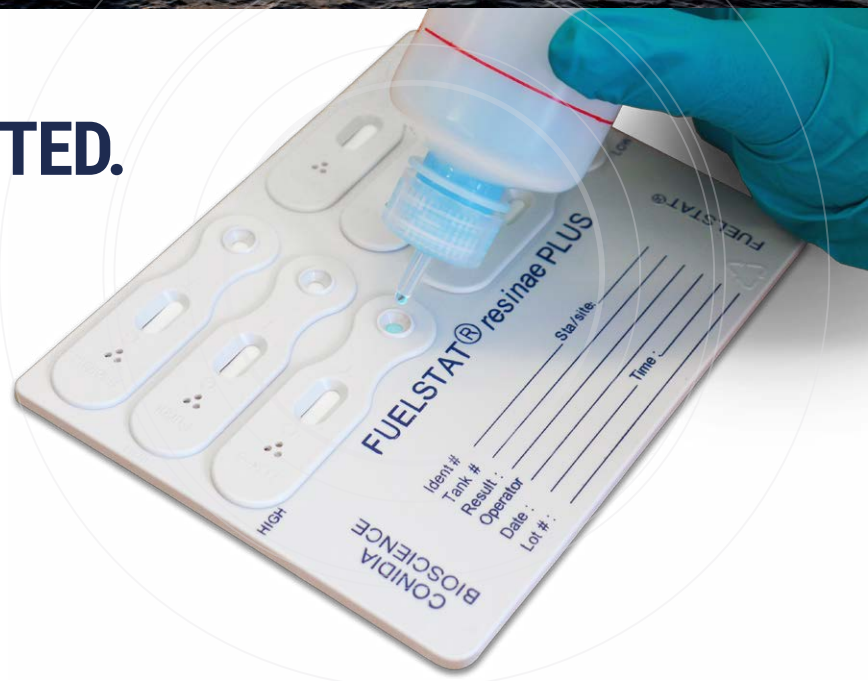


MARINE & OFFSHORE

IMO 2020: Is your marine fuel at greater risk of microbial contamination?

TRIED. TESTED. TRUSTED.

FUELSTAT® provides rapid detection of microbial contamination in fuel





Is sending samples onshore for microbial fuel tests worthwhile or economical?

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

Sending the fuel samples onshore isn't simple. ASTM D6469 highlights 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 4-7 days for a test report?

FUELSTAT® SOLUTION
TEST. RESULT. REPORT

within 15 minutes



MARINE & OFFSHORE

Every year, many sea vessels experience technical and mechanical problems caused by fuel microbial contamination.

Microbial contamination can grow quickly in short time periods—so testing marine fuel yourself is very important. Similarly in offshore applications there are many users of stored fuel; day tanks, backup power generators, cranes and the transportation that relies on stored fuel (diesel-powered life craft and helicopters).

- Does your fuel contain dangerous levels of microbial contamination?
- **FUELSTAT**[®] can quickly help you find out!



IMO **2020: WHY MARINE FUEL MANAGEMENT IS EVER MORE IMPORTANT**

The IMO 2020 regulations are important for fuel users, as they require fuel manufacturers to reduce sulphur concentration.

Whilst the direct effects of sulphur reduction on long term fuel stability are, yet unknown, several published studies indicate that introduction of biodiesel, primarily Fatty Acid Methyl Esters (FAME), can increase microbial contamination overall due to the hygroscopic (water absorption/retention) nature of FAME.

- How are you addressing the risk of increased microbial contamination?
- Regular ***fuel tank testing*** is advised at sea or in port
- Manual cleaning of fuel oil tanks during dry-docking and while the ship is in service

MICROBIAL CONTAMINATION IN FUEL

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

Microbial contamination, in particular, is almost always present in fuels to some degree. Left unchecked for too long, it can do serious harm to engines and tanks, and even cause leaks and environmental damage. Diesel "bug" microbial contamination creates a slime called a biofilm or biomass that can induce several issues. If left for a prolonged period of time without treatment, it can cause:

- Blocked filters
- Increased injector wear
- Increased fuel consumption
- Engine failures
- Corrosion and tank leakage
- Excessive exhaust smoke



HOW DO YOU MANAGE THE RISKS OF DIESEL FUEL MICROBIAL CONTAMINATION?

A single case of diesel fuel microbial contamination, if left unchecked, can easily cost hundreds of thousands of pounds/dollars in damages and remedial activities. Basic fuel maintenance, in comparison, costs relatively little—so it makes good business sense to do these activities. 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**

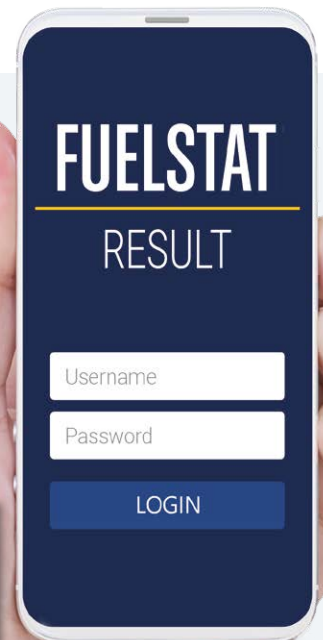


In critical times, you need a fast, convenient testing method - one that doesn't require multiple people to complete the process. Using FUELSTAT®, a single person can conduct tests at the tank after minimal training from our instructional videos. FUELSTAT® is based on immunoassay antibody tests. Just 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
Moderate - Repeat the test to confirm the result and increase the frequency of water drainage.		
	Fuel	Between 150-750 µg/L
	Water	Between 33-166 µg/ml
Heavy	Fuel	Greater than 750 µg/L
	Water	Greater than 166 µg/ml
Heavy - Consider general treatment, such as increased water drainage, biocide treatment, fuel filter change, etc.		
Phone make: Apple	Portal version: 1.2.2	
Phone model: iPhone 6s	Analysis approved by:	
App version:		
Disclaimer - FUELSTAT® Result is designed for use with tests which are fully compliant with ASTM D8070-16.		

TRIED. TESTED. TRUSTED.

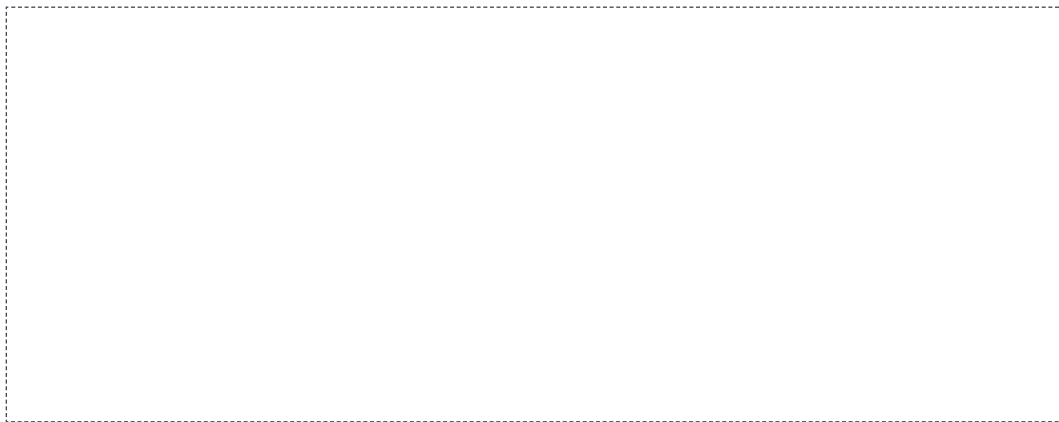
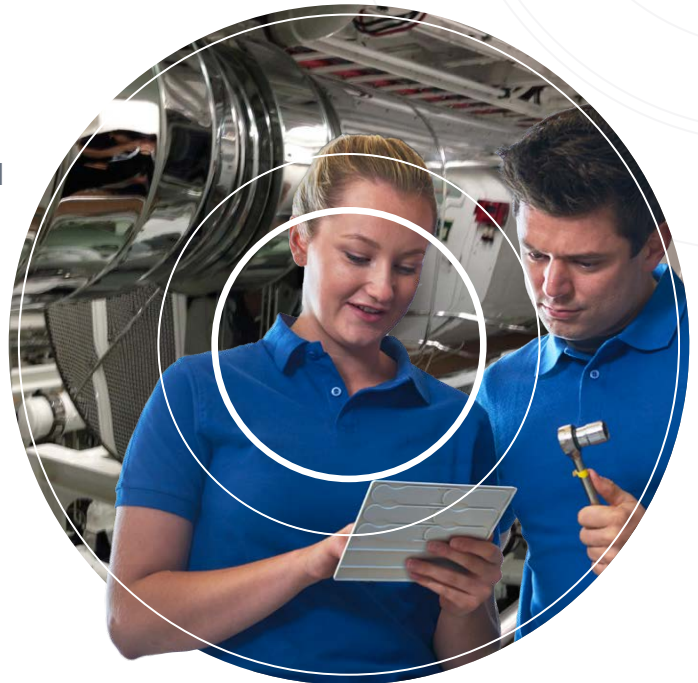
FUELSTAT®

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.



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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