



MicrobMonitor

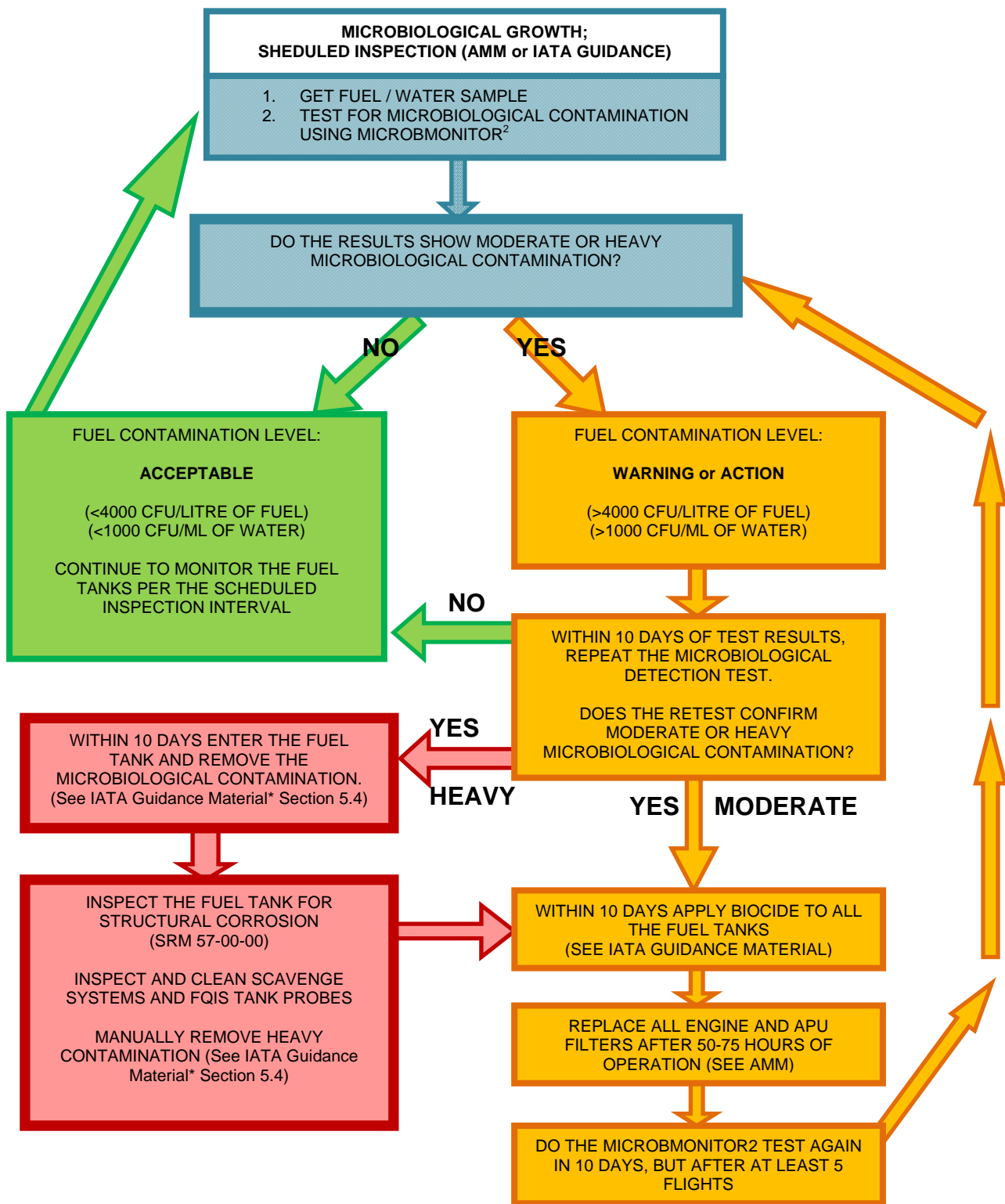
Routine Microbiological Monitoring of
Aircraft Fuel Tank Drain Samples with
MicrobMonitor² and Interpretation in
Accordance with IATA Guidelines.

Technical Guidance

ECHA Microbiology Ltd.
www.microbmonitor.com
☎ +44 29 2049 6321 ☎ +44 29 2049 3671
sales@microbmonitor.com
Cardiff, United Kingdom

EP096.161009


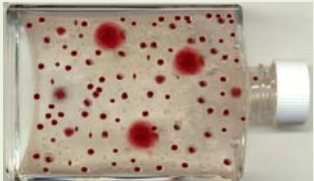


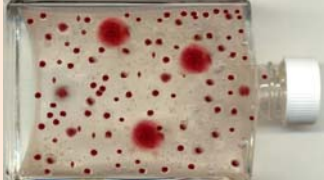
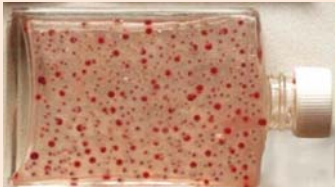






Routine Monitoring of Aircraft Drain Samples with **MicrobMonitor²** and Interpretation in Accordance with IATA Guidelines for Aircraft Drain Samples.



* IATA Guidance Material on Microbiological Contamination in Aircraft Fuel Tanks 3rd Edition, ISBN 92-9195-437-3 See ECHA Leaflet EP119 for more information on contamination levels in fuel and water phase in terminal and storage tank bottom samples and samples of bulk fuel and fuel delivered.

How to Interpret MicrobMonitor² Test Results In Accordance with IATA Guidelines for Aircraft Drain Samples



Interpretation	SAMPLE TYPE	
	Filter / Tank Drain or System Low Point	
	Water phase (if present) (0.1 ml tested)	Fuel phase (0.5 ml tested)
Negligible Acceptable	<p style="text-align: center;"><1000 cfu/ml <i>(<100 colonies estimated)</i></p>  <p style="text-align: center;">to</p> 	<p style="text-align: center;">< 4,000 cfu/litre* <i>(<2 colonies counted)</i></p>  <p style="text-align: center;">to</p> 
	<p style="text-align: center;">1000 – 10,000 cfu/ml <i>(100 – 1000 colonies estimated)</i></p>  <p style="text-align: center;">to</p> 	<p style="text-align: center;">4000 – 20,000 cfu/litre* <i>(2 – 10 colonies counted)</i></p>  <p style="text-align: center;">to</p> 
<p style="text-align: center;">Heavy Action</p>	<p style="text-align: center;">>10,000 cfu/ml <i>(>1000 colonies estimated)</i></p>  <p style="text-align: center;">To</p> 	<p style="text-align: center;">>20,000 cfu/litre <i>(>10 colonies counted or estimated)</i></p>  <p style="text-align: center;">to</p> 

Notes on Reading Tests

The pictures shown are typical results for MicrobMonitor². The size and shape of the colonies may vary but it is the number which is important. The recommended test volume for aviation fuel is 0.5 ml. Some fuels (containing additive packages) may produce a slight uniform pink or orange discolouration in the test gel; this discolouration will not affect the test result.



Notes on Taking and Testing Samples

It is important when testing routinely to be consistent in the procedure for sampling and testing, so that results over time can be compared. In particular sampling equipment and sampling valves should be clean and, if possible, sterilised by rinsing or wiping with a 70% alcohol solution (ensure all residues of alcohol are removed before taking the sample as it may affect the test result). IATA recommends that a 1 litre sample is taken. Suitable MicrobMonitor sampling bottles and alcohol wipes are available if required. Sampling a/c fuel tanks for microbiological contamination can be a specific procedure or part of the normal sumping procedure of aircraft fuel tanks.

If water is present it should be tested as well as fuel phase. Ideally, the sample should be allowed to stand for a few minutes (about 2 minutes per cm height of fuel in the sample) so that any water settles, and then 0.5 ml fuel for test taken from half way down the fuel phase, avoiding transfer of visible interfacial particulate, water droplets or emulsion. Levels of contamination in water phase will usually be much higher than in fuel phase which is why separate guidance is given above. Note; in accordance with industry convention, water phase results are expressed per millilitre whilst fuel phase results are expressed per litre. Increasing trends of contamination are important as well as absolute limit values.

Drain point samples will not necessarily reflect the status of bulk fuel in the aircraft tank but when fuel is received into a tank it is likely to disturb any contamination on the tank bottom into the bulk fuel. Due to the nature of use of aircraft any settled contamination in the aircraft tanks is likely to be disturbed and suspended in the fuel during flight. Thus, heavy contamination in the tank bottom indicates a potential risk to safe operation.

This leaflet is appropriate for samples of aviation turbine fuel and associated water, from aircraft fuel tank drains. Other technical leaflets are available at www.microbmonitor.com

- For interpretation of results of tests of aviation fuel in distribution system samples, please see our leaflet EP119 Routine Monitoring of Aviation Fuel Storage Tanks and Distribution Systems with **MicrobMonitor**².
- For interpretation of results of tests of samples from Diesel fuel storage tanks please see our leaflet and EP132 Routine Monitoring of Diesel Fuel Tanks and Distribution Systems with **MicrobMonitor**².

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