

DEF STAN 91-91 includes IP 565 Particle Count test for aviation fuels

Important and significant changes have been included in DEF STAN 91-91 (Issue 6) with the introduction of a new laser based Particle Count test for aviation fuels (IP 565). The new test will replace the traditional Millipore test (IP 423/ ASTM D5452) which is due to be phased out by 2009.

The latest DEF STAN revision which has just been published states *“The implementation date for particle counting is 30th June 2009, but where possible, to help the data collection process, the results should be reported before that date. It is the Specification Authorities intention to replace IP 423 with IP 565 at the earliest opportunity”*.

Inclusion of the new laser particle test is a result of the Aviation industry’s ongoing efforts to enhance fuel quality and safety, increase engine reliability and reduce maintenance costs. The inclusion of IP 565 in Revision 6 provides fuel suppliers and engine manufacturers with a more objective, quantitative assessment of the cleanliness of aviation fuel than has previously been practical.

On its journey from refinery to wing tip, aviation fuel is exposed to many sources of potential contamination with particulate matter and water causing the most common problems. The previous DEF STAN 91-91 standard specified a contamination (particulate) limit of 1mg/l at point of manufacture, a test that not only lacks precision but is also performed using a millipore (filter) test that was introduced in the 1950’s and requires laboratory procedures to obtain a result.

IP 565 - *“Determination of the level of cleanliness of aviation turbine fuels – portable automatic particle counter method”*

The new laser test is made using the Seta ‘AvCount’, a fully automatic laser particle counter.

AvCount is an easy to use, rugged and portable instrument specifically designed for testing the particulate content of fuel and lubricants including all aviation turbine and gasoline fuels. It incorporates the latest innovative measuring technology to provide a rapid test result and a very low-maintenance test instrument. The new instrument is designed for use in the laboratory or at relevant fuel distribution locations (ie: airport).

‘AvCount’ features a high precision laser measurement system capable of identifying particle sizes from 4 µm to >70 µm. The measurement sequence runs automatically, with a complete test sequence in under 4 minutes, using only 80ml of sample. Results are displayed in real time on the LCD display and printed on the integral printer. Test results saved to memory can trend sample results, or can be downloaded to a PC for further detailed analysis using Statistical Quality Control (SQC) for quality traceability.

The introduction of ‘AvCount’ now allows fuel suppliers to provide customers with a more comprehensive and reliable ‘fuel cleanliness’ report whilst significantly reducing the effort needed for testing. Maintenance personnel can more easily identify and isolate any potential problem in fuel filter and fuel tank systems, supporting reduced maintenance costs and downtime. In fact all those associated with the quality and cleanliness of aviation fuel can now benefit from a far superior means of ensuring fast and precise particulate analysis.

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