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**ASSESSMENT OF METHODS FOR THE MINIMISATION OF INTERFERENCE  
FROM SUSPENDED WATER DROPLETS IN JET FUEL DURING PARTICLE  
COUNTING ANALYSIS**

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Particulate contamination in jet fuel is normally assessed by gravimetric Millipore testing (IP 423 / ASTM D 5452). This test method has a number of disadvantages, such as poor precision, large sample size and that it is not possible to gain results in real time. In recent years, the use of particle counting technologies has been investigated and two laboratory methods, based on laser obscuration technology, are available from the Energy Institute (IP 564 and IP 565). These test methods are required by Defence Standard 91-91 issue 6 and the Joint Check List. Laser obscuration technology has been used for other petroleum products for many years and has a number of advantages over the gravimetric methods such as: Smaller sample size; reduced analysis time; technology transferable through distribution chain (on-line, real-time analysis available); calibration to ISO standards.

These laser obscuration methods detect both solid particulate and water but cannot differentiate between the two. This poster/paper assesses methods for removing or reducing the affects of suspended water droplets on particle counting results. Two methods are assessed:

1. The addition of a co-solvent to solvate water droplets.
2. The addition of a proprietary additive that forms a micro-emulsion reducing water droplet size to less than 1  $\mu\text{m}$ . This droplet size is below the size detected by the two particle counting methods. The additive thereby reduces the affect of water on particle counts.

The first method has been found to give erratic results are reasons for this are suggested. The second method appears more robust and is offered in a commercially available package.