UNISERVICE/TURKIYE
VISWA LAB.FUEL ANALYSIS
BULTEN # 26

What are the acceptable contamination levels in Bunker Fuels?

We are continuing our Technical Updates on this subject, triggered by the Singapore incidents. Our customers have received explanations from their fuel Suppliers. Based on this, they have posed some important questions to us and we are trying to provide answers below:

1. **Q:** Is it true that every bunker fuel will contain some contaminants such as the solvents (Xylene, Toluene etc.) and the presence of these solvents is nothing unusual?
   A: Not true. We have tested several samples using the same GC-MS method and we have not seen the presence of solvents — i.e. solvent content is '0'. Solvents are not supposed to be present in bunker fuels produced in a well-run refinery.
2. **Q:** We are told that the contamination by Methyl Esters, Xylene, Toluene etc. can be present up to 5% before any damage can occur?
   A: In addition to the statistical data we have, we have also obtained an opinion from one of the very big engine manufacturers. Damage has been recorded at contamination levels much lower than 5% — even at 2 to 3%. The damage occurs first with main engine fuel pump since the clearance between the plunger and barrel is around 8 microns only. However, inside the cylinder, the damage potential is less since clearances are greater. As long as the fuel has good ignition and combustion properties, the potential for damage in the cylinder is lesser than that in fuel pump.
3. **Q:** What are the various test methods, detection limits etc.?
   A: Please see the separate Technical Update on "Primer on detection of contaminants in Bunker Fuels using various test methods and instruments."
4. **Q:** What about organic chloride contaminants?
   A: Contamination by organic chlorides should not exceed 5ppm. In fact, refineries will not accept any crude oil that contains more than 5 PPM of Organic Chlorides. The potential for damage is very high. Other test methods and instruments should be used to detect the presence at very low levels. (See Tech Update on " Primer on detection of contaminants in Bunker Fuels using various test methods and instruments").
5. **Q:** Do you recommend testing fuel for contaminants on a regular basis?
   A: Knowing the high cost of bunker fuel related damages, it is wiser to test the fuel for additional contaminants at least in ports where the contamination has been noted (such as Singapore and Min). The test cost is nothing. Both as a measure of self-assurance and also to let the Supplier know that the fuel quality is being monitored, it is an expenditure well worth its value.
6. **Q:** What tests do you recommend and what is the cost?
   A: The tests are listed in the Tech Update on "A Primer on detection of contaminants using various test methods and instruments". A protocol of all the tests and cost will be provided on request.

Best regards,

Dr. Vis