

Passing the fuel test

With continued advances in technology, it is now possible to determine the concentrations of a variety of chemicals in bunker fuels*.

These include both those which occur naturally as part of the refining process and those which are introduced during the blending process. And the results of research show just how important fuel testing can be.

During 2008, 19% of all samples tested by Lintec had one or more parameters failing to meet the relevant ISO specification; 19.6% of heavy fuels tested failed, while off-specifications for distillates were lower, at 13%, with over 15% of low-sulphur fuels (lsfo) failing to meet the limits.

The main parameters found to be off-specification were viscosity (almost 9%), density (4%), water content (under 3%) and sulphur (just over 1%). In addition, 2.4% of all samples tested by Lintec were rated as having a 'critical' off-specification parameter. This can be defined as a fuel failing to meet sulphur legislation, a high acid number, or excessive catalytic fines in the fuel.

This pattern of non-compliant parameters is repeated for lsfos, the main offenders being viscosity, density and water content. But only 2% of lsfos tested during 2008 failed to comply with the ECA sulphur limit. This is in stark contrast to fourth-quarter of 2007, when 14% of lsfos were found to be off-

specification for sulphur.

Although in percentage terms the numbers of samples found to be off-specification for catalytic fines were at similar levels for high and low-sulphur fuels, the average aluminium and silicon levels for lsfos was markedly higher than the average for high-sulphur fuels.

Increased blending will invariably introduce the possibility of different quality issues which are potentially not covered by ISO 8217: 2005. Lintec has found that around 2%-3% of fuels analysed under its chemical screening programme have evidence of chemical waste. In the majority of cases, this waste will not affect the operation or safety of the vessel. But, in a small number of instances, this chemical contamination can lead to acid attack of fuel pumps and other engine components, plus filter blockage caused by the build-up of polymer.

The value of fuel testing is self-evident and owners, operators and charterers should not be tempted as a result of financial pressures induced by the current global economic downturn into using non-accredited laboratories for fuel testing and analysis.

The marine industry is under acute financial pressure at the moment, so it is no surprise to find that some sectors of the shipping industry



Lintec's managing director Geoff Jones.

are contemplating whether it is worth forgoing quality for a lower perceived price. It is not.

Quality matters

Quality really does matter. The minimum entry level for any testing agency must be a documented Quality Management System (QMS). This is designed to ensure that, at a basic level, the quality, administrative and technical systems, which govern the operations of a testing agency, are well-documented. The next tier is certification of the management system for conformity to an international standard, usually ISO 9001:2008.

But since 2005, the 'gold standard' has been ISO/IEC 17025:2005 (E), which specifies the requirements for competence to carry out testing in a manner not covered by ISO 9001. ISO 17025 is used as a measure to recognise the technical competence of a testing agency and is designed to give customers confidence in the test house.

Employing a non-accredited laboratory for your bunker testing may result in a vessel burning poor-quality fuel, with all the ensuing operational and commercial difficulties this brings with it.

**This article was written by Geoff Jones, managing director, Lintec Testing Services.*



Jones advised owners and operators to use accredited fuel testing laboratories.