Putting bunkers to the test

Contamination continues to be a hot topic, not least for the operators of stranded ships effected by contaminants in fuel. US-based Drew Marine, part of the Ashland Group, fears that there are still not enough ship operators taking testing seriously; DNVPS opens a new branch in Houston; and Lintec advises tanker operators that on-spec fuel is a must for the creation of inert gas

Stephen Burak of Drew Marine is concerned that while most large fleet owners and operators exhibit a "diagnostics approach to fuel management", this is not always the case. "We see ship operators that only spot test fuel when a problem arises, and some do not test at all. Generally, when a widespread fuel contamination is identified in a particular port, more fuel buyers will test bunkers loaded in that port," he says.
Burak warns that the most common fuel problem, a high level of asphaltenes, or dense carbon particles in the fuel, could cost shipowners burning 40 metric tonnes of fuel a day an extra $30,000 annually in the form of shore disposal costs and removal costs.
Incomplete combustion of poor quality heavy fuel oil, which results in exhaust system deposits, also leads to higher maintenance costs and smoke/noxious emissions from the ship's stack. Another common problem, deposits from ash (vanadium) and sulphur in the fuel, could lead to engine and exhaust system corrosion.
While a comprehensive testing programme should alleviate the stress caused by poor quality fuels, Burak warns that ISO 8217, the industry standard for bunker fuels, a minimum standard to which companies test, may not cover all contaminants. "ISO 8217 appears to be stringent enough for the knowledgeable buyer and user that looks at each fuel parameter, both individually and in combination with other parameters that may affect it," he says. "But tests for unusual contaminants, such as polypropylene, waste chemicals and used lube oil, which are not included in the ISO 8217, are only required on an "as needed" basis," he warns.
Burak has his eye on another area of ISO 8217 that he believes could be improved, the ignition quality test, or CCAI, as he feels that the current calculation using viscosity and density is "only an indicator and not very accurate".
With so much knowledge circulating about the potential problems stemming from poor quality fuel, it comes as a surprise that ship operators are not doing more to find out exactly what is in their fuel deliveries, but should some of the onus rest on local governments?
"Marine heavy fuel oil is the waste from the refinery, sold at a lower price than the crude oil price paid. It's sold at a loss by the refinery. Any government regulation forcing the refiner to improve the quality could result in either a much higher price or the availability drying-up, since refiners will not want to assume a greater loss," says Burak.
"Buyer and user education is key to improving the current situation. Knowledge of fuel quality and usage will eliminate some of the problems. It begins with a properly written fuel purchase specification that explicitly identifies the fuel grade and quality, exceptions to the fuel grade, contaminants, and sampling procedure during bunkering."
In this respect, Burak praises the document CP-60 written by the Singapore Maritime and Port Authority, describing it as "the most comprehensive document identifying proper bunkering, sampling and addressing disputes".
For Drew Marine's part, the company highlights the importance of fuel testing to shipowners during fuel management and training seminars conducted. It also has an alliance with ABS Oil Testing Services and works closely with other fuel testing

services, at the request of shipowners using their services, to evaluate fuel quality and recommend solutions to specific fuel and engine problems.
Drew Marine - in cooperation with its parent company Ashland - has a number of products in development designed to improve fuel storage, handling and usage, including fuel homogenisers, multi-catalyst fuel additives, electronic multi-grade fuel and lube oil testing units.

Next stop, Houston for DNVPS
DNV Petroleum Services (DNVPS), one of the world's leading bunker testing companies, is scheduled to open a laboratory in Houston, Texas in January 2003.This follows the company's setting up of a facility in Algeciras, Spain, earlier this year.
Slated to be the seventh fully owned DNVPS laboratory, DNVPS Houston will target the high volume of traffic in one of America's busiest ports, where the second largest petrochemical refining centre in the world is also located.
By setting up a new laboratory in Houston, DNVPS will reduce the sample analysis turnaround time significantly. Tankers bunkering in the port will find this enhanced service especially useful, as the quality of the fuel will be known prior to leaving the port.
DNVPS Houston Station Manager Hauk Larsen Wahl says: "Tankers taking fuel in Houston will have their samples analysed locally, thereby eliminating the need to transport samples to our existing laboratory in Teaneck, New Jersey. This will considerably shorten the lead time for getting the samples analysed and results transmitted to the vessels.
"In fact, comprehensive reporting of fuel quality results will in most cases take place within 24 hours after the completion of the vessels bunkering when DNVPS Houston comes into operation."
Besides providing fuel quality analysis to tankers and other vessels, DNVPS Houston will service land-based power plants running on diesel engines within the USA as well as in Central and South America.
DNVPS Houston is sited near the entrance to the Port of Houston container terminal in La Porte. It will be the second laboratory operated by DNV Petroleum Services in the USA, after DNVPS Teaneck.
Subject to the recovery of the world economy, the company plans to set up laboratories in Panama, South Korea and Brazil in the next year.

On spec fuel a must for inert gas creation
Chemical and parcel tanker operators have a particular need to be certain that the fuel they burn is on spec.
"Most parcel tankers make their inert gas on board by scrubbing exhaust gases," explains John Dixon, managing director of Lintec Testing Services. "Given the sensitive nature of their cargoes, that gas has to be ultra clean, and free of discolourants and other particles.
"If the original fuel burnt in the engines is too high on particulate matter or carbon content, then it puts a heavy load on the gas scrubbers. Cleaner fuel makes for cleaner exhaust gas, and less scrubber maintenance and less chance of contamination."
Dixon also points out that chemical tanker operators in particular have to be extremely careful not to lose auxiliary power.
"When you are loading or discharging a complex mixture of toxic or corrosive chemicals, you can't afford to lose power," he says. "Being sure of your fuel quality is an important part of guaranteeing power supply."
Writing in the September issue of Testing Times, Lintec's newsletter, Ben Polack, bunker co-ordinator of Jo Tankers, says he purcheases around 300,000 tonnes of

marine fuels annually, to keep a fleet of 40 chemical parcel tankers running. He buys only from quality suppliers, but has all fuel he buys tested.
"I want the suppliers to know that I am testing," says Polack. "We buy to an ISO specification, and as a major charterer, we are of course also buying for our chartered ships and have contractual obligations to supply the right fuel to them. I can buy from a good supplier, but even good suppliers can have accidents or supply shortages, so I want to be sure we are protected."
"If you don't test your fuel you are taking a big risk," says Polack. "And the cost is very small compared to the cost of the fuel. If you don't test, and there is a problem on board, it is too late. The ship is at sea, where you cannot easily get at it."
The company policy is for all bunker stems to be held in isolation until a clean test report is received. "It is peace of mind for me, for the ship operators and for the chief engineer," says Polack.

Drew Marine's advice to shipowners to protect themselves against substandard fuel purchases

1. Fuel buyers and users should be educated about fuel quality.
2. Fuel users should evaluate and maintain records of what fuels burn well in their engines, and especially note specific fuel parameters that cause problems if exceeded.
3. Shipowners should draft a proper fuel purchase specification.
4. Shipowners should establish a fuel diagnostics program including: fuel sampling, onboard test kits and laboratory analysis. Once established, the annual cost will be approximately $3,000-5,000 per ship, to identify the quality of and safeguard against problems when burning the $1-2m of fuel per vessel annually.
5. Use chemical additives wisely to address specific problems and only when required.