

Lintec Warns on Chemical Contamination

Lintec Testing Services has warned that ongoing fuel contamination with chemical waste poses a potential risk to the health of ships' crews and the operation of vessels. The chemical in question, styrene monomer is a chemical commodity. It is frequently present in trace amounts in fuel due to problems encountered at refineries and chemical plants. However, a recent fuel stem in Rotterdam contained styrene contamination at a concentration of 4,000 ppm, many times the level at which Lintec considers to be acceptable.

"One of our clients had to debunker several thousand tonnes of fuel because we discovered high levels of styrene during routine screening," says Lintec managing director John Dixon. "Over the last three months we have seen a number of fuel stems with high styrene content, some in the 2,000 to 4,000 ppm range. Results from our chemical screening database indicate that approximately 40% of samples tested contained some trace of styrene with over 20% having more than 100 ppm styrene concentration.

There is no acceptable limit, but we consider that action needs to be taken to control this type of contamination."

According to Dixon, the contamination is ongoing, and Lintec is now co-operating with an oil major and several independent suppliers to isolate the source of the problem.

"Waste chemical contamination in bunkers raises three problems," explains Dixon.

"Firstly, you are paying for fuel but getting waste material, and in this debunkering case our client got many tonnes of waste when he paid for fuel. Secondly, there is the health and safety issue. No shipowner knowingly puts their crews at risk from inhaling chemical vapours. Finally, there is the issue we usually hear about which is whether or not the fuel will damage the engine. Well, we don't think styrene monomer does that but under some circumstances it can polymerise and cause fuel filter clogging.

But there is a big problem with health and safety and this contamination needs to be controlled. Styrene should not be present in bunker fuels because it poses a significant health risk.

The problem is most acute in Antwerp and Rotterdam, although we do see styrene in fuels from Gibraltar, Houston and Singapore, but at much lower levels."

Lintec's state-of-the-art Gas Chromatography Mass Spectrometry (GCMS) screening programme for detecting waste chemicals in bunker fuel was launched as an add-on service to normal fuel testing last year. This high-end analytical tool for bunker quality investigations offers an extra layer of forensic protection on a routine basis, at very small cost. The service gives Lintec's clients the benefit of an additional protective edge.

Section 4.1 of ISO 8217 requires that bunker fuel "should not contain any additional substance or chemical waste which jeopardises the safety of ships."

"The ISO standard refers to damaged engines, not damaged crews, and we launched this thinking about engine damage," says Dixon. "But now we are finding fuel that can put crews at risk, and several of our major liner clients have put health and safety at the top of their priority list. Lintec is the only fuel tester to routinely check marine fuel samples to meet the criteria of Sec 4.1 of ISO 8217," Dixon says.

Lintec's GCMS programme tests for chemical contaminants before the fuel is needed for burning. The key objective of the programme is to test fuel samples for the presence of volatile waste chemicals which have been known to cause severe engine damage or which pose a health risk.

"GCMS is a key investigative tool, considered by the environmental testing industry to be a workhorse technique rather than one used for research and development. There is no reason why the marine fuel testing industry should not follow this example and monitor bunker fuels for the presence of undesirable waste chemicals within the same timescale applied for other test parameters," Dixon adds.

