Potential Contamination - High Sulphur Fuel Oil - Singapore

Written by
Vijay Rao
Loss Prevention

The Club has become aware of a number of cases of contaminated high sulphur fuel oils being stemmed in Singapore. There have been instances of engine failure, potentially due to high levels of organic chlorides. These chlorides do not originate from normal refinery processes and are considered a possible cause of contamination. These fuel oils were bunkered in March 2022.

Reportedly, due to the number of cases of chloride contamination that have been identified a number of recognised fuel analysis laboratories have issued alerts suggesting that this is a widespread issue. The Singaporean authorities have investigated this matter and subsequently identified a bunker supplier as the source of the organic chlorides.

It is unlikely that the high levels of chlorides in the HSFO, if present, could be identified in a standard fuel analysis to verify fuel quality in accordance with the ISO8217 specification. Any deleterious inclusion that is not normally found in fuel oil blends is likely to manifest itself at the fuel treatment systems or at the engine fuel injection system, resulting in the failure of engines and significant damage and loss of propulsion. In one instance, catfines were also found to be at elevated values, although they were within the ISO8217 limits.

It is important to highlight that the chloride contamination that has been reported is in the high sulphur fuel oils used by vessels fitted with exhaust gas scrubbers for MARPOL VI SOx compliance and not Very Low Sulphur Fuel Oils (VLSFO).

We should, however, not rule out other potential fuel oil issues that may be present in VLSFO such as high levels of sedimentation, catfines and low flash point. Continued vigilance and standard testing should therefore be undertaken as part of fuel management procedures.

The Club has also been notified of a case where VLSFO bunkered in Singapore had high values for Total Sediment Potential [TSP], above the ISO8217 specification limit of 0.1%. TSP is a measure of the thermal ageing of the fuel oil. Once high TSP was established, de-bunkering was considered the most prudent action.

There have been a number of alerts issued by laboratories such as VPS that have identified high levels of sedimentation in bunkers stemmed not only in Singapore but also in other ports.

A value over the limit in the specification, or elevated values of TSP suggests a potential for the fuel oil to sediment. This could further lead to deposits in storage and fuel systems, with sludge precipitation and

clogging of purifiers and filters. Incomplete or irregular combustion could also manifest itself, potentially resulting in damage to and failure of the engines.

Club would further like to draw Members' attention to reports of fuel oil stemmed having a low flashpoint, this was discovered during routine laboratory analysis of samples collected during bunkering.

The flashpoint of fuel oil is a safety requirement under SOLAS Chapter II-2 Reg. 4 and is to be more than 60 degree centigrade if the fuel is to be stored in the engine room. For fire safety reasons the minimum difference in temperature between the fuel oil and ambient should be at least 10 deg Celsius. The relevant Classification society must be consulted if low flashpoint fuel is to be put to use, and all measures as agreed with the Flag and Classification society must be followed, with an appropriate risk assessment undertaken. It may be necessary to debunker the fuel when considering the associated risk to crew and ship.

It is recommended that vessels that have recently bunkered in Singapore should take appropriate precautionary measures and continue to closely monitor for any indications of fuel related issues. Where possible a vessel should cease using any suspect fuel oil and change over to an alternative stem. Members are also encouraged to consider seeking guidance from their respective fuel laboratories for any advanced testing that might be necessary. Notify the Club of any fuel related issues experienced and seek the advice of fuel specialists for the continued use of such fuel or give consideration to de-bunkering. It is important that the fuel tanks are cleaned before new bunkers can be stemmed if the suspect fuel is to be offloaded.

In the event of engine damage and/or a quality dispute with a supplier, the evidence gathered is key This will include instructing surveyors to inspect the engine, to a satisfactory outcome.

taking and retaining fuel samples and documentary records from the vessel - log books, oil record books, and maintenance records. Bunker suppliers or time charterers will often allege contamination or poor fuel management on board and/or generally inadequate engine maintenance. In this respect, to pursue a successful claim, it is necessary to establish on a balance of probabilities, not only that the fuel was off specification, but also that the particular supply caused the engine damage. In addition, bunker supply contracts frequently seek to impose very short time limits within which to notify claims, failing which, quality claims are time barred.

Before bunkering Members are encouraged to raise their concerns and request details of the measures that the bunker suppliers are undertaking to prevent a similar problem.

Members should also consider reviewing the onboard fuel management procedures, record keeping and documentation in regard to fuel sampling, fuel segregation in storage, fuel temperature management, effective fuel oil treatment and engine performance evaluation and management. This is important in the event of any dispute arising from any fuel related issues experienced and a decision to not use the fuel oil.

High numbers of bunker issues have also been reported by our correspondents and that delays are expected for undertaking standard ISO specification testing and any advanced testing where this is considered necessary.

These links are to bulletins issued by FOBAS and Vishwa lab, which further highlight and clarify the issue of Organic Chlorides. Similar alerts have also been issued by VPS and Verifuel which further serves to highlight the magnitude of the problem.