

Fuel Quality Claims – Technical and Legal FAQ

A collection of questions asked by online attendees during webinars hosted by our Singapore office on 2nd April and 6th May 2020

CONTENTS

Fuel stability and handling on-board	3
GCMS testing	4
Machinery damage	5
Bunkering and sampling	7
Sulphur tolerance and compliance	8
COVID-19 challenges	9
Fuel standards	9
Contractual and legal issues	11
Miscellaneous	13

Fuel quality webinars

The UK P&I Club successfully conducted two webinars in April and May 2020 from our Singapore office. In view of the social distancing measures put into place due to COVID-19, this was one of the ways the Club adapted to service its Members and ensure the safety of its Membership and entered tonnage. The webinars addressed the following topics:

- Bunker Quality Claims – Practical and Legal issues
- Technical Aspects of a Fuel Quality Claim

Moderated by Anuj Velankar, Senior Loss Prevention Advisor, UK P&I Club and featuring Ansuman Ghosh, Risk Assessor, UK P&I Club, the webinars were well attended with over 1,000 registrations and a worldwide audience. There were numerous questions submitted during both talks, and the following seeks to address the queries posed.

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Fuel stability and handling on-board

Q: "In most cases when sediment content is high and lab report states that the bunker is UNSTABLE, does it make the bunker off-spec?"

A: The stability of a fuel is defined in terms of its potential to change condition during storage and use. Instability primarily relates to the potential for asphaltenes to precipitate and lead to the formation of sludge. In terms of specification requirements, stability is normally assessed by measuring the total sediment, representing the sum of the insoluble organic and inorganic material separated from the bulk of a fuel sample by filtration through a standard filter under specified conditions. **Marine fuels are considered off-spec when the total sediment potential is higher than 0.10%.** The threshold at which many labs consider sediment content a potential issue is at TSP > 0.08%. In case of doubt, the TSP should be checked by the TSP aged method, this is the referee method and takes 24hrs.

Q: "Are the new LSFO blends more prone to biodegradation than the HSFO blends that have been in use?"

A: We have not as yet encountered cases where VLSFO has been affected by microbial growth. However, sulphur species are considered to have anti-microbial properties in fuel and therefore it is expected that lower sulphur fuels could, generally speaking, be more prone to microbial growth.

Q: "Many suppliers are still using older specifications for fixing contracts. Also even if you specify VLSFO stem for RMG380 grade for delivery, you might still get the supplied fuel corresponding to RMB30 grade and the supplier then uses the lower spec values for analysis quality. How would you manage a claim in where the Al+Si value came out as 50mg/kg?"

A: It is worth commenting from the outset that ISO 8217 only stipulates maximum values, except for flash point for which an identical minimum limit applies for all residual grades. Therefore, a fuel which is in compliance with RMB 30 is also considered to be in compliance with RMG 380, as all of the maximum limits in the RMB 30 grade are lower/stricter than the equivalent in RMG 380. If the fuel is off-specification against RMB 30 due to, say, cat fines being 50 mg/kg (compared with the maximum limit of 40 mg/kg in RMB 30 as per ISO 8217:2010), the fuel may still be acceptable as RMG 380 and therefore in line with the charter party requirements.

Q: "What additives can be added to improve stability and reduce liner wear?"

A: There are additives available which are claimed to improve the solubility of asphaltenes in unstable fuels where there have been difficulties with asphaltene precipitation. Whilst we are unable to comment on the effectiveness of the additives, it is generally maintained that a vessel's fuel oil tank architecture is such that it compromises efficient homogenisation of additives in the fuel.

Q: "What is the limitation period for storage of VLSFO?"

A: The storage longevity will depend on the inherent stability of the fuel. However, for a stable fuel we expect a storage period of several months. Whilst this is said, fuel containing non-homogenous species may undergo stratification during long-term storage and therefore prolonged periods of stationary storage are not recommended.

Q: "Are ISO 8217 metrics such as stability (TSP and TSA) impacted by the chemicals present? Or is the stability of the fuel unaffected by chemicals (i.e. Styrene, Indene, DCPD) present? Why isn't GC-MS testing mandatory?"

A: TSP and TSA give an indication of the amount of sediment present in the fuel after heating to 100°C for 24 hours and accelerating precipitation with a paraffinic solvent, respectively. These tests focus on the precipitation of asphaltenes and sediments out of the fuel. No direct relationship between the concentration of certain compounds and engine damage has been established and therefore no limits on any particular compounds have been included in the ISO standards to date.

Q: "Is there information available on the typical 'shelf life' of VLSFO grades?"

A: As mentioned earlier, VLSFOs may have increased microbial growth compared with higher sulphur fuels. However, fuels with higher paraffin contents from VGO blend stock may be more chemically stable due to the increased inherent stability of paraffinic hydrocarbons. Generally, fuels should be stable for months of storage, although long term storage is not recommended as certain fuels can have a propensity to settle and stratify during storage.

Q: "We have been facing huge sludge production and clogging on the purifiers. Any comments on this?"

A: This could be related to poor stability of the fuel or high sediment content in the fuel. We have also seen similar issues in fuels which contained coal tar or shale oil blend components. In the event of significant sludge production, it is considered prudent to retain samples of the sludge in order to perform investigative analysis to identify any contaminants in the fuel.

Q: "Reference to comments on TSP, do we have additives available that can lower these levels where the values are marginally above the max allowed?"

A: There are many additives available in the market. They assist in sludge dispersion and management. Some vessels are using additives. Some brands are Aderco, Innospec, etc. These are expensive products. It is important to consult the engine manufacturer before using any additive.

Q: "In case wax appearance temperature is above the 'allowed temperature' that the tanks can be heated to, due to the cargo in adjacent cargo holds, what is the P&I's position? Should the shipowner risk the vessel being stranded due to lack of flow of fuel, or risk cargo damage?"

A: This is indeed a very tricky situation. If the cargo can be damaged by fuel tank heating, the only option will be to transfer the fuel to another tank if such is available. There is no clear solution but the only way to prevent such a scenario from arising

will be for all to understand the situation, the possibility of facing such a situation and to plan ahead. This is a major problem with VLSFO fuels with high pour point and cloud point.

Q: To what extent are the recommendations of shore-based laboratories useful in adjusting the lubrication feeds, etc?

A: This would depend largely on the laboratory and the tests which have been performed. Generally, laboratories' advice can be considered to be general recommendations and it may also be useful to consult the lube oil and engine manufacturers.

Q: "VLSFO causes wax formation in the filters and excess sludge in the purifiers. Analysis report is nevertheless Normal. Can we claim to the Charterer?"

A: This will be a difficult scenario in which to bring a successful claim as I understand that there are no parameters for identifying cloud point for residual fuels in ISO 8217 2017 table two.

There are some fuel testing labs carrying out proprietary cloud point tests for residual fuels. While I am not in a position to comment on the validity of these tests, I have heard that these tests are turning out to be useful for identifying wax formation issues. The trend of VLSFOs with very low viscosity combined with high wax appearance temperatures is a recipe for operational issues. This is because heating of the fuels is required to prevent wax formation but the viscosity of the fuel should not be too low as that could cause poor fuel atomisation, leaking pumps, vapour locking, fuel starvation, and ultimately, potential loss of propulsion. It is possible that cooling of the fuel will be required in some of the cases. These are the biggest challenges. I am hopeful that the next ISO 8217 specification will be identifying these problems and coming out with suitable parameters for VLSFO blends. Until then it will be important that the problem is fully understood and that correct steps are taken to mitigate problems.

Q: "Understand that ISO 8217 allows both thermally aged and accelerated (chemical aged) tests. As we see a number of cases related to Total Stability Potential (TSP), and in many cases, with wide variations in these two tests, it will be useful if you can give your opinion and any additional advice regarding this matter."

A: The short answer to your question is that TSP is the reference method, regardless of which version of ISO8217 is being tested to.

To explain further, the 2005 version of the specification called f or TSP (Aged), both in the table 2 and in the text of the standard.

However, the TSP test is a 24-hour test, making it difficult for the labs to test en masse, and to report in a timely manner.

When the 2010 version of the specification was written (and subsequent versions), it was agreed that the standard would address the above issues, quoting TSA (accelerated) in the table 2. However, the text of the standard reads that either method can be used, but that TSP (aged) is the reference method. So this means that many labs continue to use TSA for convenience/speed, but in the event of a claim or off-spec, TSP must be run and its result will determine the outcome.

Generally there is good correlation between TSA and TSP. This is correct while the sediment levels remain within specification (i.e. relatively low). But when the levels become elevated, the delta will tend to get bigger.

Q: "What should ship staff do if they encounter problems with machinery/purifiers due to high TSP? How do we decide what is normal and what is too much?"

A: There are various best practices for purifier and fuel system filter operations such as keeping low feed rate and throughput, maintaining high temp at inlet, increase desludging rate, noting counter of the backwash fuel filters, monitoring differential pressures across filters, just to name a few. By following such procedures, engineers will very quickly be alerted to the fact that something is wrong. Photographs, samples before and after purifies, of all counter, filter pressure drop readings to be kept. In case above is not working, use of additives can be considered, but the engine manufacturers should be consulted before additives are used. Additives have been proving very effective, but they are expensive. If there is still no success, the use of MGO is the next option.

GCMS testing

Q: "In case the GC-MS test fails, what is the shipowner supposed to do? The GC-MS test is not included in the ISO standards, and it is often not accepted by suppliers and charterers."

A: The results of GC-MS analysis, and of other investigative tests, need to be evaluated on the basis of ISO 8217 Clause 5 and industry evidence. Specifically, the type and concentration of the compounds detected in the fuel need to be considered along with any evidence of the fuel causing problems when consumed.

Q: "We have seen GC-MS tested fuels with higher indene, styrene and even some phenolic compounds being used without any issues on longer-term periods. At the same time, there is no hard evidence that these compounds can cause issues. How can GC-MS testing then be recommended?"

A: There is mixed evidence as to the effect of these compounds on fuels and on the concentrations required to be present for the fuel to cause damage. In some cases, GC-MS analysis identifies very high levels of compounds often considered unacceptable. For example, compounds such as chlorinated hydrocarbons can be considered to place the fuel in breach of Clause 5, even if present at low concentrations. The results of GC-MS analysis, and other investigative tests, can be considered alongside observations made during consumption of the fuel.

Q: "In view of the problem found in VLSFO, are Owners recommended to conduct a GM-CS test as a routine test or can they consider such a test only when problems are detected after the fuel (which has passed Table 2 tests) is consumed?"

A: As a fuel not only needs to comply with the primary Table 2 quality parameters of ISO 8217, but also the more general requirements detailed under Clause 5, it has become increasingly common for prudent shipowners to subject the fuels to GC-MS testing as well.

Q: "It appears a GC-MS test would reveal more components which might not have been found but for the test. However, the difficulty is no one can confirm whether those components or how much of them would actually cause damage to the engine. So, should there be a parameter for every component under a GC-MS test? If not now, should there be one in the future?"

A: Whilst there is at this stage insufficient evidence to define maximum limits for compounds which are being detected, it should be borne in mind that GC-MS can also detect compounds which should not be present at any concentration. In due course we expect there will be a standardised method for the detection of certain compounds in the fuel, with concentrations limited by a maximum specification.

Q: "As an example, GC-MS results show existence of compounds not commonly found in fuel. Owner doesn't want to use it but how can we be sure that it would cause damage at potentially very low levels without actually using it? Debunking is a very difficult and expensive option. This can lead to a stalemate situation between bunker supplier and owner."

A: If the analysis does not identify any issues or significant contamination of the fuel, a trial burning of the fuel to determine whether it is suitable for consumption may be suggested.

Q: "What ISO standards should GC-MS test adhere to?"

A: No specific test method for GC-MS analysis is stipulated in ISO 8217. The correct method to use will depend on the nature of the claim. ASTM D7845 (direct injection GC-MS) is a standardised method for GC-MS analysis, but focuses only on a selection of known contaminants and so is not exhaustive. In certain cases and on the basis that not all contaminants are amenable to identification by direct injection GC-MS, a more targeted and specific analytical approach may be required. This should be assessed on a case by case basis.

Q: "What is the significance of additional tests like the GCMS test in case of disputes? As the contract supplier is contractually obligated to supply as per ISO8217, how does this additional test help?"

A: In some cases, although the fuel supplied may satisfy the ISO8217 tests, they may contain contaminants that affect the vessel when burned, which can only be identified by advanced analytical techniques such as gas chromatography, combined with mass spectrometry (GCMS). Thus, if no such testing is contractually provided or actually attempted, buyers/users may not think they have contractual recourse as the fuel provided would be appear to as on-spec in relation to the contractual provisions (such bunkers would have satisfied the ISO8217 parameters) despite there being contaminants that negatively affect the vessel that may be detected through GCMS testing. However, in addition to the Table 2 criteria, ISO8217 also requires the fuel to be suitable for burning and free from

contaminants, which arguably forms a basis for further testing if it is suspected that it does not comply with this requirement. Many charter parties and supply contracts may also specify that the bunkers should be suitable for burning in the Vessel's engines, so buyers may be able to rely on this more general provision to support an argument for wider testing.

Q: "The standards for testing do not make sense if the things causing problems in chemicals are coming from outside the refining industry. Should the testing criteria change?"

A: There is no use in changing the testing criteria if you don't know what you are looking for as the contaminants are coming from various sources and the best way to check for these contaminants is by GCMS testing. GCMS screening tests are being done by many labs currently. The detailed testing arrangements are not available in every lab. Also, these tests take time, are costly and only give results of what you are looking for. Many fuel-testing consultancies are able to point impartially to contaminants by looking at parameters such as acid numbers.

Q: "Are all the labs up to speed with the latest testing standards around the world?"

A: A large number of laboratories around the world can perform ISO 8217 Table 2 testing. Investigative testing which lies beyond the Table 2 parameters such as GC-MS analysis and stability tests is usually more limited in availability and usually involves sending samples to the US, Europe, UK, UAE or Singapore.

Machinery damage

Q: "What is the reason for piston ring and liner damage due to VLSFO, considering that VLSFO meets acid number metrics of ISO 8217?"

A: Whilst there is some suggestion that fuel composition and types of lubricity packages used may play a contributory part, the association between piston ring and liner damage and VLSFO is still being explored by the industry as a whole.

Q: "Liner wear is not tied to BN value as per experience?"

A: Whilst it is not absolutely clear what is being asked, I suggest the main engine manufacturers are approached to comment on this as many variables are considered when recommending the base number for lube oils.

Q: "Is it possible for the stability/acid number of VLSFO to change over time during the duration it is present on board a vessel? If that is the case, then it would cause liner and piston ring polishing."

A: If a fuel has inherent stability issues it is possible for these to manifest themselves during storage over time, for example through the formation of sediment or sludge in the fuel tanks. Acid numbers could theoretically change over time if a fuel contains unstable compounds, although we have not seen cases where this has occurred.



Whilst piston ring and liner scuffing in VLSFO may be associated with the lower neutralising demand of the low sulphur fuels compared with high sulphur blends, this is still a topic of investigation within the industry as a whole.

Q: “Regarding handling of new VLSFOs, and engine damage (piston ring/liner failure), what advice can you give Chief Engineers about the correct use of lube oil, considering the fuel is on-spec as per ISO 8217. Is a GC-MS test still recommended?”

A: We have encountered cases where this type of damage occurred when consuming VLSFO, although the exact causes are still being investigated in the industry. The Table 2 parameters and lube oil/engine manufacturers’ guidance should be sufficient in the first instance.

Q: “If we are using a BN 40 Cylinder Oil, what parameters other than sulphur content of the fuel should we look at or consider when deciding the lube oil feed rate?”

A: I suggest the main engine manufacturers are approached to comment on this as many variables are considered when recommending the base number.

Q: “What is your opinion on diene compounds (styrene, indene, DCPD) and phenols, and the risk of their forming gummy deposits in fuel injection systems?”

A: We have seen suggestions that the compounds mentioned above are associated with formation of gummy deposits, however, there is limited evidence to suggest the concentrations at which these species might cause engine problems.

Bunkering and sampling

Q: “Is it correct that ‘representative sample’ is the one collected at the point of custody transfer, and is the receiving ship’s manifold this point?”

A: IMO Guidelines in Resolution MEPC.182(59) state that the supplier should provide a MARPOL sample drawn by the supplier’s representative at the receiving ship’s bunker inlet manifold. Thus IMO only mandates the sampling location for the Marpol sample (not for other commercial samples). The implementation of this requirement is left to individual flag states and marine authorities. In some jurisdictions local regulations stipulate that the sampling location for all samples shall be at the receiving ship’s inlet bunker manifold unless this is impractical for safety reasons.

On the other hand, ISO 8217 states that the sampling of petroleum fuels for analysis shall be carried out in accordance with the procedures given in ISO/TR 13739:1998, Clause 10 or the equivalent National Standard. In the absence of any applicable national standards, ISO/TR 13739:1998, Clause 10 (specifically clause 10.4) states that “sample should be drawn continuously throughout delivery, except in the case of tank sampling”. Clause 10 does not specify a precise location from which samples should be drawn, but states that “for practical reasons, the preferred sampling location is at the bunker

tanker’s end of the delivery hose. However, it is recognised that other sampling locations such as the vessel’s end of the delivery hose may apply, if mutually agreed by the parties”.

In Singapore, this guidance in clause 10 is very well followed as the same is also specified in the port bunkering guidelines endorsed by the MPA. Other jurisdictions leave decisions on the sampling location, including for the MARPOL sample, to the supplier and buyer to agree upon. Many supply contracts specify the sampling location as the barge manifold and this is agreed to and signed by the fuel purchaser. Thus, I suggest that the supply contracts are checked in the first instance as the supply barge will follow what is specified in the supply contracts.

Q: “Sometimes, the bunker is supplied by trucks. What is the sampling procedure as there may be more than 40 supply trucks?”

A: I have seen bunker supplies by trucks, mostly for lube oil or at times for MGO bunkering but I have yet to see this practice for residual fuel bunkering. In case the supply is from 40 supply trucks with 40 different BDNs, then a separate sampling for each truck is necessary. If the entire supply has been covered under one BDN, the BDN needs to specify all the 40 truck identifications. In that case, a continuous single representative sample can be considered. Supplying fuel oil in this manner will be very difficult to monitor, and is preferably to be avoided.

Q: “Seems we can enter only 5 sample numbers on a BDN in Singapore? What do we do if we have more samples?”

A: This issue needs to be addressed with the supplier. There is no statutory requirements or guidelines on how many sample numbers are to be entered on the BDN. All samples in Singapore are drawn at the vessel’s manifold, closely monitored by the vessel’s staff. I think the 5 samples will be as follows: Marpol sample, vessel sample, barge sample, sample for owners’ test and attending surveyor’s sample.

Q: “We have had a number of bunker tests come back with one or two parameters out of spec. Usually, a second sample is tested. Our fuel specialist maintains that any retest must be limited to only those parameters that were off-spec, not the entire spectrum of specs. Owners are insisting that all parameters must be included in any retest. The situation is a bit messy and fuel buyers/technical operations group is asking if there is any guidance or norms out there on the testing protocols on the composition of retests once one or more parameters are out of range on initial tests?”

A: There are no norms or standards that stipulate how many additional parameters are to be tested during a fuel re-test. There have been scenarios of two completely different results on one parameter tested; one result produced by the shipowner during his own tests and another from the supplier after retesting the binding sample in the presence of a surveyor following a dispute. This gives rise to doubts as to whether the samples are taken from the same source. The practice of testing parameters in addition to the one in dispute/doubt started so that the sample oil being retested can be finger printed to the oil received on board.

Usually, to enable this finger printing, it should suffice to test the viscosity, the density and another parameter such as water content along with the parameter(s) in dispute. This decision has to be made between the fuel buyer and the supplier.

But the root cause of this problem is the availability of two different locations for sampling; one at the receiving vessel's manifold and the other at the bunker supplier's barge manifold. Most bunkering ports do not have any clear guidelines on sampling location. Thus, the supplier does his own sampling at his barge manifold and often it is difficult for the ship's staff to monitor the process unless they go down to the barge. The ship's staff will also do another sampling at the vessel's manifold. Singapore port has clear guidelines that the sampling must be done at the receiving vessel's manifold. Thus when the sampling is done in one location and witnessed, sealed and signed off in the presence of both parties, disputes can be reduced. Unless all ports/jurisdictions enforce this practice, the problem will remain.

Q: "Why is finger printing necessary during retesting of fuel?"

A: This is to rule out any possible sample tampering or mix-ups. If the other table 2 parameters such as viscosity, density, water content etc. are found to be the same, then we can be confident that the correct oil is being tested.

Q: "IMO recommendations are that bunker samples need to be taken on the receiving ship. But in many ports they are insisting on taking this on the bunker barge. What can we do? Charterers are insisting that we do not report to flag state."

A: Not much can be done about this as this is a jurisdictional issue, and one that is often agreed in the supply contract. Suppliers will cite safety reasons for taking the sample on the bunker barge. What I can advise is close monitoring of the sampling. The ship's staff should verify that: correct sampling is being done, it is representative, a drip sampler is being used, the bottles are tamper proof and sealed in the presence of both parties.

Sulphur tolerance and compliance

Q: "On Owners' commercial testing of stem for sulphur. There's no legal obligation for Owners to do so and the potential small margin of difference in sulphur content by way of reproducibility will not necessarily impact on the performance of the engine. Why not stop testing for sulphur and defer to the BDN figure – avoid commercial dispute on delivery and raise unnecessary concerns of potential non-compliant fuel? Thoughts?"

A: What is being suggested is a possibility though not recommended. Some flag states have responded in a few cases saying that they consider the BDN figure to be the guiding sulphur percentage and do not give importance to Owners' own test of the commercial sample. They further comment that how an individual PSC will react to marginal variances cannot be confirmed. The entire situation is currently without much clarity and I hope this will improve. On the other hand testing of sulphur cannot be completely avoided as it is important for

cylinder oil TBN and feed rate adjustments, though I agree that marginal variances will not make much difference to the engines.

Q: "Sometimes different tests on the same LSFO bunkered show different results of sulphur content; some <0.5%, some >0.5%! What is the advice to deal with this? What is the official allowable tolerance?"

A: In terms of compliance with and enforcement of the sulphur cap/carriage ban, this will, to a large extent, be dependent on how the relevant port state control ("PSC") enforces these rules. When it comes to testing/verifying the sulphur content of a fuel stem, PSC can test either the MARPOL sample or an "in use" sample of the bunkers on board the vessel. Whether or not they will have regard to the tests already conducted on the commercial samples is not clear.

MEPC.1/Circ.882 provides for two testing standards to be applied:

- In respect of the in use/on board fuel oil sample, the relevant threshold for compliance is 0.53% sulphur content.
- However with respect to the MARPOL sample, if the test reveals sulphur content above 0.50%, then the fuel is non-compliant. In other words, there is a zero tolerance for any results over the 0.50% limit for tests carried out by PSC on the MARPOL delivered sample, unlike for the in use sample.

In cases of marginal variances we generally advise a retesting of the binding sample in the presence of independent surveyors. The contents of the sample is divided into two parts for retesting. While retesting, it needs to be ascertained that the results are within the repeatability of the lab. The results are averaged to get the final result.

Q: "What kind of PSC observations is the Club seeing with regards to LSFO regulation compliance?"

A: We have had two interventions at Chinese ports related to sulphur percentage in fuel. In one of them, a LOU had to be provided to release the vessel. The case is still under investigation.

Q: "For ships fitted with scrubbers, what are the problems being faced, and what checks/failures have been appraised by external inspectors?"

A: I haven't seen any interventions related to Scrubbers yet. Members are referred to the UK P&I Club's IMO 2020 page and the UK Defence Club's dedicated IMO 2020 webpage for additional information on Sox issues.

Q: "When (owners + suppliers) suspect that the bunker delivery samples were contaminated and we take samples from the bunker tanks on the vessel, will PSC then accept these (on-spec) results rather than the also off-spec MARPOL sample?"

A: Samples taken from the bunker tanks are not representative of the entire bunkering operation, so there is the problem of no representative sample. Such issues should be discussed with the vessel's flag state and a written agreement reached with PSC.

Q: "Under which circumstances will the PSC test the Marpol sample bottle?"

A: Generally, PSC will test the in use or on board sample. Only when the sulphur content is found to exceed 0.53%, and there is a doubt regarding the supply parameters, will they then check the Marpol sample.

Q: "Has the Club seen any cases related to fines and detentions related to high sulphur?"

A: Yes, two direct cases so far; one related to the carriage ban.

Q: "What is the solution to the sulphur tolerance problem?"

A: Retesting using the same principles of Marpol sample testing has helped. This is done by dividing the sample into two parts, checking that each reading is within repeatability of the lab, and then averaging.

The second and better option would be ordering fuel with maximum sulphur content as 0.47%.

It would also be helpful if fuel suppliers and the entire industry can come to a consensus of not blending so close to 0.5%.

Q: "Can Owners' analysis report be used by PSC and SIRE inspector against owners, if the sulphur content is shown as 0.51% or 0.11%?"

A: PSC when in doubt will first check the sulphur content from a sample taken close to the Engine. This is called the "in-use" sample. If the results turn out to be higher than 0.53 %, then they might want to investigate and look for the fuel delivery sulphur content. Questions regarding owners' own test can be expected at this point.

Similarly, SIRE inspectors may also want to see if owners are doing their own fuel testing. SIRE inspectors often ask for documents and procedures which are not governed by any statutory requirement, for example, the crew matrix.

COVID-19 challenges

Q: "During this COVID-19 situation, many bunker barges are not allowing the ship's personnel to witness the tank sounding on board the bunker supplier barge, or the sampling at the bunker barge's manifold. What is the solution?"

A: This pandemic is indeed an unprecedented event, and currently, there is no clear solution to the situation described above. It will be important to record and to log such incidents. The use of explosion proof cameras and video recorders in lieu of personnel being on site might be a possible solution. The International Group of P&I clubs is currently working on guidelines to address scenarios such as these. These guidelines should hopefully be issued shortly.

Q: "With the Covid-19 situation causing delays in getting samples tested, is there anything the shipowner can do to protect against time bars?"

A: The COVID-19 situation has indeed lengthened turnaround times for testing samples and created other problems, such as inability to witness testing. Unfortunately, the short time bars applicable in many supply contracts may fall due before test results are received. In a best case scenario, perhaps where there is a good commercial relationship, the supplier may agree to a time extension, though that seems unlikely in many cases. In any event, owners/purchasers are advised to notify the bunker supplier of the situation and seek to reserve their position. Whether or not such notice will protect them will depend on the applicable law of the contract and the wording of the time bar, but it is certainly a prudent protective step to take which may offer some assistance.

Fuel standards

Q: "Does the UK P&I Club have a position on encouraging its Members to use ISO 8217: 2017 specs, which supposedly is the basis for the 0.50% sulphur cap regulations?"

A: ISO 8217:2017 is not linked to the 0.5% sulphur regulation. The ISO specs mention sulphur content "as per Statutory requirements". We do encourage our Members to use the latest specs whenever possible. Having followed the specs results of the various improvements of the specs over the years, I noted that provisions relating to CAT fine levels have been made stricter, and acid numbers and H₂S parameters which were not available in 2005 specs, have been introduced. The 2017 specs have also introduced a number of improvements for distillate fuels. It is however surprising to find that many supply contracts are still incorporating the older specs, some even referring to 2005 specs.

Q: "We notice that bunkers complying with ISO8217:2017 (E) are not as commonly supplied as bunkers complying with ISO8217:2010. We wonder what the main differences between these two versions of ISO 8217 are?"

A: The specification limits under Table 2 are identical for both versions of ISO 8217. Clause 5 of the 2017 edition has been reworded slightly to allow for the inclusion of synthetic and bio-derived hydrocarbons in addition to hydrocarbons derived from petroleum refining. We have not encountered any issues which have been directly associated with the inclusion of these alternative sources of hydrocarbons at this stage. Having said that, we are still at the early stages of the blend trials.

Q: "Regarding poor take up of ISO 8217-2017 specs, do you feel this has been limited due to the changes to clause 5 within 2017 which has in effect weakened over recent years in comparison with other parameters that have become tighter?"

A: The poor take up of the 2017 wording may be due to a lack of familiarity or industry inertia as well as the fact that the changes made are not substantial. There may also be a shift to



include additional testing provisions (i.e. GCMS testing) with buyers realising that certain fuels that appear to be on-spec following the 2017 specs could actually possess contaminants that can only be found through more advanced testing techniques. However, it is important that operators specify the latest version of ISO 8217 (i.e. currently 2017) so that recent developments in fuel quality and regulations are reflected. For example ISO 8217-2017 specifies a sulphur level in compliance with applicable regulations, whereas earlier versions still refer to a sulphur content of 3.5%.

Q: "Does R&R tolerance generally apply to all parameters or only to sulphur?"

A: There are R&R tolerances for all parameters listed in ISO 8217 specs. In fact it is usual in a test environment for all tests to have R&R tolerances. The R&R tolerance figures might, however, differ between parameters.

Contractual and legal issues

Q: "Please advise on actions to be taken as the effects of damage caused by a certain fuel may only be seen a few months after the fuel has been consumed."

A: We have seen cases where fuel has caused engine damage even though it may have been found to be on spec in accordance with initial ISO standard testing. In such cases, there are usually indications of potential problems within the initial test results, for example higher than usual results for sediment potential. In such cases, the supplier should be put on notice of any such issues at the outset, even if the fuel is within the ISO specifications, and further testing may then be required before burning.

If engine problems are experienced in cases where there have been no initial indications that the fuel is off-spec, the supplier should again be notified immediately and it may be necessary to seek legal advice on whether the time bar applies in the circumstances.

Q: "I understand that sampling should be dealt with at the charter party negotiations stage. However, should this not have been dealt with, is it possible for crews to 'force' barge representatives to mention in the BDN samples taken at the receiver's manifold, seeing that the BDN sample seals numbers are the only legally binding samples in case of a dispute?"

A: The contractual position between Owners and Charterers will be governed by the charter party alone. If the charter party provides for certain samples, such as vessel manifold drip samples, to be binding, a remark in the BDN that only the BDN samples are to be legally binding is unlikely to override that. Crews can, of course, try to ensure that the samples mentioned in the BDN are the representative samples and not some other samples, though in practice this may be difficult to enforce and is often subject to regional and individual bunker supplier practice. To achieve a back-to-back position, charterers should, where possible, try to ensure that the agreed binding samples in the supply contract reflect those agreed as binding in the charter party.

Q: "The Time Charterer wants a 15 days' time bar clause in the NYPE CP to raise any performance or quality claims for the bunker stemmed. A Bunker non lien clause was not accepted in by the Time Charterer in the charter party negotiations. What can Owners do to reduce exposure to problems like those encountered in the OW bunkers saga without a Bunker non lien clause?"

A: The time bar for quality claims is not relevant to the issue of bunker supplier insolvency. For the latter situation, which has become topical recently in light of the insolvency of Singaporean bunker supplier Ocean Bunkering Services / Hin Leong, there are protective steps that can be taken, though they are subject to negotiation. Owners should seek to include a protective clause such as the BIMCO Bunker non lien clause in their time charters, which require the charterers to inform their counterparty, the bunker supplier, at the outset that any bunkers ordered are being supplied for their account and that no lien can be placed on the ship. When purchasing bunkers directly, parties may also seek to include a provision that requires the supplier to give them good title to the bunkers. A suggested wording, and other guidance on this issue, can be found in the UK Defence Club's article here:

https://www.ukdefence.com/fileadmin/uploads/uk-defence/Documents/Soundings/2016/UKDC_Soundings_-_BUNKERS_NOT_FOR_SALE_-_May_2016_web.pdf

However, it may be hard to persuade counterparts to agree to such provisions and, even if they agree, the effectiveness of any of the above precautions will still depend on the applicable jurisdiction.

Q: Specs aside, the major issue an Owner faces is the supplier's General Terms & Conditions (GTC) which are invariably favouring the supplier. Does the International Group club have a standard/model suppliers' GTC to be pushed to suppliers?

A: BIMCO has issued model bunker terms, the wording of which can be found here:

<https://www.bimco.org/contracts-and-clauses/bimco-contracts/bimco-bunker-terms-2018>

Although many bunker suppliers insist on using their standard terms, if parties are at least able to negotiate certain provisions in their favour, such as lengthening time bars and streamlining sampling and testing procedures with the correlating charter party, that would be of great help in many cases.

Q: "If there are multiple traders i.e. bunker fuel is on-sold a few times before it is delivered, then, in that case would the BDN become the document to determine the contractual buyer?"

A: Understanding the contractual framework in each case would require a case-by-case consideration of the facts and specific documents and relationships between all the parties involved. However, it is unlikely that the BDN would be the determinative document to identify the contractual buyer, since the BDN usually names the ship and/or the shipowner, but it is often the charterer who actually purchases the bunkers. The more likely document for this purpose is the order confirmation.

The order confirmation is likely to identify the contractual parties, i.e. the buyer and the seller of the fuel, and set out any applicable contractual terms, which may include incorporation of the seller's standard terms and conditions.

Q: *"The end buyer might not be privy to the order document?"*

A: It is correct that the end buyer may not be privy to certain contractual arrangements relating to the supply of bunkers. For instance, the end buyer is unlikely to be privy to the underlying contractual documents between the intermediary and the physical supplier. Similarly, the shipowner, where the vessel is under a time charter, would not be privy to the ordering of bunkers which is contracted by the charterer. However, in such a scenario, as mentioned, it would be the charterer who would be the contractual buyer. The BDN in this instance is, however, useful to identify the physical supplier against whom a tortious claim might be available for a shipowner who suffers damages. It may also be that the buyer orders the bunkers from an intermediary who, in turn, orders them from the physical supplier.

Q: *"Most bunker barges refuse to mention vessel seal numbers on the BDN and also refuse to countersign the letter of protest (LOP) in this regard. What is the solution?"*

A: A carefully worded letter of protest (LOP), when issued and served, can be a useful evidential record of contemporaneous events as described in the letter. This may be the case even if the person to whom the LOP is addressed refuses to sign or to acknowledge it. Owners might also consider including a clause in their charter party requiring their charterers to ensure that the vessel's seal numbers are included in the BDN. If the supplier fails to do this, then the owner may at least have recourse against the charterer for failing to procure this.

Q: *"Regarding time bars for raising claims for bad bunkers, what if the new bunkers start giving issues after this time limit?"*

A: It is true that bunker supply contracts often contain short time bars. Whether a time bar clause would bar a claim in such circumstances depends to a large extent on how the clause is worded and how it is interpreted as a matter of the applicable law. It is possible, for example, that a time bar clause only kicks in from the time when the user can reasonably discover that the fuel is off-spec. The best hedge against a time bar problem accruing is thorough testing at the time of receiving the bunker stem on board the vessel. If possible, Members should seek to negotiate longer time bars when entering into supply contracts. Members are recommended to always take note of time bars and when problems are encountered, to take immediate steps to protect time from expiring. This can be achieved either by requesting a time extension if the quality of the bunkers has not been ascertained by the time bar, or by notifying the supplier or commencing legal proceedings timely if necessary. Members should always notify their P&I and their Defence Clubs promptly of any issues with their bunker fuels, and of any applicable time bars.

Q: *"To safeguard owners'/charterers' interests, would it be prudent for owners'/charterers to contract directly with physical suppliers instead of traders? We have seen the OW case disrupting the markets. What is your view on this?"*

A: What you described is essentially a credit risk problem. It is in theory better to buy from a physical supplier who owns the product that is delivered, instead of a trader that obtains a product from a physical supplier on credit. However, in most major bunkering hubs, the structure of the market may not make it economic for end users to only source their supplies from physical suppliers. Indeed, this is a risk that is coming to the fore again now, in light of the insolvency of the Singaporean bunker trader, Hin Leong. Owners can seek to protect themselves in relation to bunkers purchased by a charterer by including a "bunker non-lien clause" in their charter party. There are also certain protective provisions that can be included in bunker supply contracts relating to payment times and retention of title, though of course these are always subject to negotiation and few bunker suppliers are willing to vary their standard terms and conditions.

Q: *"In the recent cases of magnets being used to interfere with MFM readings, would the affected owners'/charterers have grounds to seek legal recourse against the physical suppliers that were involved in the cases?"*

A: In such instances, the first port of call would be to put your contractual supplier on notice of a potential short supply. A complaint may also be lodged with the regulator relating to supply activities against an errant physical supplier. Any such claims would then need to be considered in the context of the contractual terms and the applicable law.

Q: *"Reg 18 of MARPOL Annex VI stipulates requirements for the quality of fuel oil delivered for use on board ships. I would assume that regulatory requirements supersede contractual requirements. Hence, would reg 18 already negate Clause 5 of ISO 8217, especially the 2017 edition that seems to be watered down when compared to the earlier editions?"*

A: Compliance with MARPOL Annex VI is a regulatory requirement that falls primarily on the shipowner. Part of that compliance stipulates that fuel taken on board for burning must be carefully sourced. This would mean that close attention must be paid when contracting with suppliers to ensure that the product would meet, as a minimum, the standards required by MARPOL Annex VI. The purchase of a supply is a matter of free contract which would not necessarily assist the shipowner in the case of non-compliance with a regulatory requirement. Owners should therefore ensure that in any purchase.

Q: *"Are owners obliged to share the tests results conducted on non-MARPOL samples?"*

A: This would depend on the context and on the contractual terms between the parties.

Q: *"We generally add FO ADDITIVES to the bunker tank prior to bunkering. In the event of a dispute, can the supplier deny the claim citing the added FO additive?"*

A: This would appear to be a matter for technical advice on whether such fuel additives caused skewed test results in a possible contamination situation. However, where the bunker quality is determined by reference to manifold samples, these should of course not be impacted by the addition of FO additives after the bunkers are stemmed.

Q: "If the vessel faces sludge problems 60 days after bunkering, is there any way the owner can go for a claim. How can P&I help?"

A: It must be first established that the sludge problem was caused by a particular problematic bunker supply, with the claimant then identifying the supplier responsible. If the problem only comes to light after 60 days, it may be that the claim against the supplier is time barred as bunker supply contracts notoriously have very short time bars. Members should notify their Defence Club immediately were this scenario to occur.

Q: "In some countries, it is not possible to off-load bunker samples to be sent for sampling. Many days can go by before the vessel reaches a port where bunker samples can be off loaded and sent for sampling. By then the time bar might be lost. If vessel on time charter (so Charterers agree the terms with bunker suppliers) what can Owners do? Owners do not have time or opportunity to check bunkers and submit claim to Charterers on time."

A: From the shipowner's perspective, the problem is likely to be less acute as the time bar clause in the supplier's terms would more likely affect the charterers' claim against the supplier, it being the Charterers' responsibility under the time charter party to supply the bunker fuel. That said, if Charterers are unable to recover from their supplier, then they may defend or resist a claim by Owners more strenuously because the liability will ultimately rest with them.

Q: "What is the time bar for the claim for bunker disputes? What is the Club's stand if the time bar expires due to use of bunker after the time bar expires?"

A: Please see our comment in relation to question 39 above. The Club recognises that it is not always possible for Members to comply with short contractual time bars, but Members are expected to act prudently and reasonably in the circumstances and seek advice promptly if any issues should arise.

Q: "For tortious claims between end users and physical suppliers, would there be any limitations as normally provided in the supply contract and particular time bar?"

A: As a matter of Singapore and English law, a claim in tort potentially may still be subject to contractual terms of supply in the chain of traders interposed between the physical supplier and the end user. However, speaking generally, a tortious claim usually carries better prospects for misapplying contractual terms to which the claimant is not directly privy.

Under English law, a claimant in a tortious action (excluding personal injury or death and latent damage claims) has six years from the date of the negligent act or omission, to bring his claim. If the claim involves physical damage, then the six years would commence from the date of the damage (Section 2 Limitation Act 1980).

Q: "In a claim against a supplier do you have to prove actual damage to the engine? I was thinking of a situation where tests show the fuel is off-spec and you debunker before using."

A: The answer is generally 'no'. Depending on the terms of the contract, it is usually sufficient to prove that the fuel supplied was not of the required quality. However, this point potentially affects the amount of damages that can be claimed. If the fuel is de-bunkered before use, then the claim would be limited to the time and the costs of de-bunkering, as opposed to a claim for engine damage.

Miscellaneous

Q: "What parts of the bunker disputes do the P&I clubs cover?"

A: Bunker issues related to sulphur percentage can lead to compliance issues at port where the vessel can be ultimately fined or delayed. Liabilities, including fines for purely accidental discharge of non-compliant emissions, are capable of P&I cover subject always to the Club's Rules and any terms and conditions of cover. Club cover for other fines is, however, discretionary. The circumstances leading to such fines will be carefully analysed by the Club's Board and decided on a case by case basis. Kindly be referred to the Club's Circular 8/19: MARPOL Annex VI – The 2020 Global Sulphur Cap for additional information on Club cover:

<https://www.ukpandi.com/knowledge-publications/publications/article/circular-8-19-marpol-annex-vi-the-2020-global-sulphur-cap-149047/>

and Club Circular 12/05 for further information:

<https://www.ukpandi.com/knowledge-publications/publications/article/circular-12-05-international-convention-for-the-prevention-of-pollution-from-ships-73-78-marpol-oily-water-separators-2114/>

On other contractual issues such as off-spec fuel, if a UK Defence Club cover is in place, then this will provide cover for legal costs. The UK Defence Club can provide advice on legal issues in all jurisdictions.

Q: "How many or what % of engine damage claims pursued against fuel suppliers since 1 January have been successful, so as to better understand if this is an exercise worth taking to its logical end?"

A: Very difficult to say! We don't know about all cases, of course, but from our perspective there have been a reasonable number of cases where suppliers have agreed to de-bunker suspect fuel and/or compensate purchasers for adverse consequences of the same. Of course, there are also many cases where liability is less clear cut and these have been more problematic. Each case is different so it is difficult to apply a rule by looking at percentages.

Q: "Have you heard about fuel with Estonian shale oil blend, and if so, what do you think about this type of blend?"

A: It is to be noted from the outset that shale oil is allowed under the latest ISO 8217. We have, however, encountered cases where excessive sludge formation was observed upon consumption of fuels which were suspected to contain

Estonian shale oil. Fuels containing shale oil compounds tend to contain high levels of phenolic and resorcinol species.

Q: "Although not a legal question, but a more operational one, is there a generic idea on the calorific value of the VLSFO 0.5% sulphur, so as to have an idea on how VLSFO and MGO compare on energy content?"

A: Low sulphur fuels generally have higher calorific values than higher sulphur blends. VLSFOs also tend to have lower ash contents, which slightly correlates with higher calorific value. The calorific value will, however, depend on the individual fuel and its physical properties.

Q: "What is your take on the ongoing discussion that LSFO is more environmentally damaging? Scrubbers seem to emit cleaner exhaust and they save money too!"

A: No conclusive evidence is available yet. Different lobbies support their own causes and concerns. Thus it is very difficult to conclusively give an answer to this question.

Q: "What is the number of incidents of ships losing power as mentioned during the presentation?"

A: Two cases have been reported to us in the last three months. The primary reason for the loss of power was very low viscosity of VLSFO fuel which resulted in gasification due to incorrect fuel heating.

Q: "What are the risks to shipowner/charterers that need to be considered if blending is allowed on board?"

A: Blending on-board is generally better avoided as a number of issues such as stability of the new blend, possibilities of fuel remaining off-spec, correct sampling provisions and a new BDN for the new blend, need to be considered. Any blending operation will also involve consultations with the Flag and the port state authorities. The supplier proposing the blending should always be asked to provide Owner/Charterer with a LOI.

Q: "Good crews are much better in processing these new fuels through the system and engine. Do you also see this with other Owners?"

A: Any statement and response we make on this subject must be based on facts. Otherwise we will not have any conclusive results. Circumstances are different on each vessel, thus it would be difficult to say that one particular ship's crew is less competent than another ship's crew to handle a specified situation. Sometimes a fuel can be off-spec by a large factor. In case of stability issues, when the TSP is much higher than 0.1%, the fuel can become very difficult to handle but marginal cases have nevertheless been handled well by some crew. Likewise regarding issues with cold flow properties. So, when such problems arise, we might need to send an external surveyor to investigate whether the problems lie with the crew or with the ship.

Q: "Percentage wise, how much has the number of handling problems per 1,000 bunker operations really increased?"

A: We do not have a number for the specific question above. The testing labs do, however, maintain data on off-spec fuel and we have a figure from a major testing laboratory which tests a large percentage of all fuels supplied globally. For the month of March 2020, the total off-spec percentage for fuel samples tested at this lab is about 3.1%. The current trend for off-spec is TSP, pour point, water and sulphur. Off spec fuel aside, there are other typical fuel problems which ship staff face, even when the fuel is on spec, such as very low viscosity, high cloud point, wax formation issues, CAT fines and an increase in the number of bunkering operations, fuel change overs, etc.

Q: "How much sludge formation and filter cleaning is considered 'too much'?"

A: There are no specified figures. Any disputes in such a scenario will require factual assessments by an independent surveyor. Other records and engine parameters will also be important. Tests of sludge samples taken before and after the purifier will help in understanding the contaminants.



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