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Cargo Carriage of soya beans

Introduction

The Standard Club has seen an increase in claims activity relating to the carriage of soya bean cargoes in the past few years. This is especially evident in the trade of this cargo between Brazil and China.

With the first harvest of the year in Brazil taking place in January/February and delivery of cargoes in the northern hemisphere in Spring, the club has collaborated with CWA to produce the following bulletin on best practices specifically pertaining to the carriage of soya bean cargo. It provides advice on how to ship this cargo in the most prudent manner to reduce the risk of cargo claims, providing some useful case studies of various claims activities and top tips to help protect members involved in the carriage of this cargo.

The International Maritime Solid Bulk Cargoes (IMSBC) Code contains useful information under the heading of 'Seed Cake', which also pertains to soya bean derived products. The club's previous [bulletin](#) on seed cake cargoes contains general information regarding the stowage of bulk agricultural cargoes.

Background

The bulk soya bean trade between South America and China has never been greater. In 2018, approximately 83.8 million tonnes of soya beans were exported to China from Brazil alone, an increase of 23.1% when compared to exports in 2017¹. Exports from South America were boosted by the trade war between China and the United States, which resulted in a steep tariff of 25% on US soya bean imports. However, the soya bean import landscape may change once again for China as it enters into further talks with the US in an attempt to reach a trade deal². The import and export of soya beans can be impacted by various external factors and these political shifts represent the latest impact on the soya bean market. Other factors to have affected the trade include meteorological and economic factors. The club has experience of a various claims being presented including some claims of more of an opportunistic nature. A general awareness of market conditions is therefore helpful.

Loss prevention advice

Soya beans are naturally liable to self-heat during long storage and transport periods because of their high oil content. The natural breakdown of the oil over time generates heat. A small increase in temperature will not usually have an effect on the cargo quality. However, soya bean's high moisture content and its storage in close proximity to external heat sources can increase the rate of this process and, over time, lead to cargo temperatures of up to 90°C. The interaction between the moisture content and temperature of a soya bean cargo will additionally influence whether mould can grow. The growth of mould will deteriorate the cargo physically and further increase the temperature of the affected cargo, while also heating other beans in close proximity.



The main signs of damage associated with soya bean cargo claims include discolouration of the beans, malodour (often a result of high temperatures) and mould growth. Whilst some cargo damage may be quite obvious, even upon a brief visual inspection, masters and their crews will be unable to fully determine the inherent quality or condition of the soya beans. Only laboratory analysis of representative samples can provide an overview of cargo quality and condition.

There are, however, a number of steps that can be performed at various stages in the transportation of soya bean cargoes to prevent or minimise claims activity.

- <https://macaudailytimes.com.mo/more-demand-from-china-increases-soy-exports-from-brazil.html>
- <https://www.channelnewsasia.com/news/business/china-buys-us-soybeans-a-day-after-trade-talks-traders-11196936>



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Preloading

- The holds should be prepared to 'grain clean' standard before loading.
- The weather-tightness of the hatch covers should be checked by ultrasonic test equipment.
- The usual checks for water-sensitive cargoes should be carried out. These may include checking cargo hold ventilator ducts, access hatches, manhole covers, air and sounding pipes. In addition, bilge lines and non-return valves should be tested for any backflow, whilst the cargo hold water ingress alarms and dewatering system (if fitted) should be tested for proper functioning.
- The bunker tanks adjacent to the cargo spaces that require heating should be identified and measures should be agreed with the ship's chief engineer to ensure that the heating is sufficient (but not superfluous) for heavy fuel oil (HFO) to be pumpable. Bunker planning should be done in advance and steam supply valves should be closed for empty bunker tanks. The use of 180cst HFO can be considered when carrying heat-sensitive cargo as it can be easily transferred without heating. When carrying heat-sensitive cargoes such as soya beans, it is also recommended that the electrical supply leading to the cargo hold is isolated. Prepare to record fuel oil temperatures during bunkering and throughout the voyage.



Soya beans

- Understand the voyage route and whether there is a risk of ship's sweat. Ensure the crew understand the cargo ventilation instructions prior to the voyage.
- Prepare for cargo temperatures to be measured through the temperature/sounding pipes and recorded during the voyage.
- Consider carrying out a preload survey of the cargo.
- Ensure that any carriage instructions received from the charterers are clear and understood by the crew. If there are any concerns, members should contact the club for advice.

During loading

- The crew/surveyor should take **date & time stamped** high-quality, colour photographs of how the cargo is delivered and loaded.
- Ensure the loading sequence is recorded in all circumstances.
- A protest should be issued by the master if any damaged cargo is presented for loading and reject visibly mouldy or darkened cargo.
- Instruct a surveyor to obtain moisture content and temperature measurements for the cargo being loaded.
- A surveyor should regularly enter the holds to inspect the cargo condition, when it is safe to do so.
- The master should ensure that when loading soya bean derived products a cargo declaration form is received (as specified in section 4.2 of the IMSBC code). It is also recommended to obtain a grain and oilseeds quality certificate well in advance of loading in order to ascertain the grade and oil/moisture content of the intended cargo. This would assist with a timely response in cases where the cargo could pose potential issues during the voyage due to its inherent condition.
- For the most accurate representative samples, cargo superintendents should refer to the guidelines as published in the Federation of Oils, Seeds & Fats Associations Ltd (FOSFA) sampling rules (see below section on sampling).
- The weather must be monitored closely by the crew. If there are periods of precipitation, loading should be discontinued as soon as possible and ideally prior to the start of any precipitation. If cargo is found to be wetted, photographs of ineffectively covered cargo prior to loading as well as any wetted loading equipment should be obtained. A protest should be issued by the master and any wetted cargo rejected. Any delays to the loading process should be detailed in both the protest and the deck log.

Ventilation of cargo

- Ventilation will not stop a cargo of soya beans from heating, but it will assist in reducing the risk of condensation (ship's sweat).
- Ventilation should be conducted in accordance with sound maritime practice and/or fumigation instructions and/or voyage instructions.
- The decision to ventilate should be based on either the 'Three Degree Rule' or 'Dew Point Rule' when the weather/sea conditions permit. The Three Degree Rule is normally recommended since it provides instructions which are more practicable whilst under sail.
- The decision to ventilate should be reviewed at least every four to six hours, since frequent changes in weather conditions may affect when ventilation should be undertaken.

- The ship should always record the ventilation strategy followed during the voyage. In other words, a ventilation log should be kept which notes which ventilation rule is being followed, all temperatures on which the ventilation decision is based and for how long each hold is ventilated. Any reason for lack of ventilation must also be noted in the ventilation log. If bad weather prevents ventilation, photographs should be taken as evidence and a sea protest which includes these photographs should be issued to all concerned parties.

Delays

- If the holds are sealed, all parties should be informed that the holds may require unsealing during prolonged delays in order to provide more efficient ventilation or permit regular cargo condition inspection.
- The condition of the cargo surface should be visually inspected on a regular basis to check for signs of ship's sweat or cargo damage.
- Cargo subsurface temperatures should be measured using a calibrated temperature probe to assist in assessing whether the cargo is heating. Updated cargo temperatures also provide a more accurate basis for continued ventilation if following the Three Degree Rule. If the holds cannot be opened, the temperature should be monitored through the temperature/sounding pipes in each hold.
- The decision to ventilate must be reviewed during any delays. It may be necessary to partially open or crack the cargo hold hatch covers to allow a more efficient exchange of air. This must only be done under suitable sea and weather conditions, and is inadvisable at night since approaching precipitation is less visible.

Cargo damage during discharge

- Evidence:
 - Damaged soya beans usually appear brown to black in colour and/or mouldy. Compacted cargo is not always damaged and can be caused by cargo settling during the course of the voyage/delay.
 - Notify the club as soon as possible in order to appoint a suitable/experienced local surveyor.
 - The location, depth and (if possible) extent of the potential damage should be recorded immediately. Detailed photographs and drawings of the location and the pattern of damage are useful.
 - Cargo temperatures of visibly damaged as well as visibly sound cargo must be obtained using a calibrated temperature probe to assess the extent of heating.



Obtaining cargo temperatures



Drip lines on cargo surface from ships sweat



Severely heat damaged beans

- Segregation:
 - Effective segregation of visibly damaged beans can reduce a claim amount significantly.
 - If the damage is restricted to the cargo surface, then effective segregation can often be undertaken either by hand or by grab during the first stages of discharge, depending on the extent of the damage.



Discharging beans by grab

- Segregation should take place as close to eventual discharge as possible so that the newly exposed layer of cargo does not have time to deteriorate.
- Damaged portions of soya beans uncovered during discharge should also be segregated.

- Sampling:
 - It is essential to sample the cargo according to FOSFA sampling rules throughout discharge if there are allegations of damage. Samples of any segregated cargo should be kept separate to samples obtained from accepted, sound cargo.
 - Upon completion of discharge, the representative bulk sample material should be mixed and reduced by method of coning and quartering to produce laboratory samples for analysis.
 - All laboratory samples should be approximately 2kg to 3kg in weight unless there are specific allegations of mycotoxins (which require greater sample sizes). The sample material should be placed in a clean, dry, plastic bag, which should be tied. This should then be placed inside another plastic bag and sealed with a numbered seal.

- All samples must be clearly labelled, stating the following: ship name, commodity, port of discharge, date of sampling, seal number, hold/quantity represented by sample/lot and from where it was taken.
- A sampling report should be produced and signed by all parties involved in the sampling operation.
- The samples should be analysed for the parameters specified within the commercial contract/quality certificate.
- All parties should be invited to jointly sample and analyse representative samples. Suitable accredited laboratories should be used.



Segregating damaged soya beans from cargo surface

Cargo Shortage Claims

In the agricultural sector it is very common to use a shore scale (conveyor belt, etc.) to establish the cargo weight. Usually if the cargo is loaded by the shore scale at the load port, it should be discharged by the shore scale at the disport. The issue arises if the cargo is loaded by shore scale and then at discharge port quantity is ascertained by draft surveys. In such cases a joint hatch sealing survey (at load and discharge ports) may assist in defending cargo shortage claims.

Members are recommended to refer to club's [article](#) on 'paper shortages' for other preventative measures that can be taken to avoid such quantity related claims.



Case Studies

Case study 1

(Highlights the importance of good segregation)

Problem: A ship fully laden with soya beans, originally intended for discharge in China, was delayed for approximately five months at a South American loading terminal. Cargo was on board the ship for over 150 days and underwent severe heating, resulting in visible discolouration and reduction in oil and protein quality.

Action: Daily cargo temperatures were obtained throughout the delay and weekly sampling of the cargo surface was performed for the determination of moisture content. The crew also undertook appropriate ventilation. A salvage sale of the cargo was arranged with the cargo being discharged at a closer port than that originally intended.

Conclusion: The cargo was segregated into three visual categories during discharge. Each category was sampled representatively and the results of sample analysis were used to provide an accurate idea of quality. This ensured that the subsequent claim could be assessed on the best possible analytic evidence.

Case study 2

(Highlights the importance of properly characterising alleged pre-shipment problems)

Problem: A seven-hold bulk carrier fully laden with soya beans from South America arrived for discharge at a Mediterranean port. The authorities rejected the cargo due to the presence of fungal sclerotia, which are considered a phytosanitary threat in some countries. The ship was delayed at anchorage for approximately three months, leading to deterioration and subsequent mould growth in the upper layers of the cargo.

Action: Inspection and sampling of the cargo surface was undertaken jointly. Sampling of the cargo using a pneumatic sampler assisted in assessing the condition of the cargo deeper in the stow. The samples indicated that the damage was limited to the surface. Spot samples of the fungal sclerotia were obtained and DNA analysis confirmed the fungal species. Samples were taken according to FOSFA rules in order to estimate the extent of the damaged cargo segregated from the surface.

Conclusion: The authorities rejected the cargo because of the phytosanitary regulation. As a result of identifying the fungal species, the cargo was able to be resold in a European port where this fungus is not considered a phytosanitary threat.

Case study 3

(Highlights the importance of cargo temperature monitoring and appropriate ventilation)

Problem: A ship partly loaded a cargo of soya beans at a South American port. Due to lack of cargo, the ship was shifted to anchorage for several weeks. On return to port, elevated cargo temperatures were measured in one of the slack holds due to load additional cargo.

Action: The master was advised not to load additional cargo. The ship sailed to the intended discharge port and was appropriately ventilated throughout the voyage. The cargo in the affected hold was rerouted to an alternative discharge port during the voyage in order to reduce the on-board storage time.

Conclusion: The cargo was discharged without complaint or any sign of condensation damage on the cargo surface despite the elevated cargo temperature and relatively cooler external temperature experienced during the voyage.

Claims advice

There are a number of additional protective measures that members may take in order to mitigate against the risks of carrying soya bean cargo beyond the technical loss prevention advice already set out in this bulletin. Such measures may include careful drafting of charterparty clauses; however, much will depend on the relative bargaining position of the parties.

Some of the relevant provisions will include those relating to the fumigation and cleaning of cargo holds. The cleaning of cargo holds prior to loading is essential given the nature of soya bean cargo as a foodstuff. Fumigation requirements can, however, pose problems for the master, not just for safety reasons, but also because it may prevent him from ventilating the cargo during the voyage. If the master does not ventilate the cargo, he is open to criticism if the cargo surface is degraded on arrival at the discharge port. It is understood that the Chinese courts in particular have previously found owners liable for cargo damages that they believe could have been prevented by ventilation, particularly when ventilation was not carried out or there was a failure to keep a proper ventilation record.



The club is aware of several clauses which members may consider adopting, including the BIMCO Cargo Fumigation Clause for Charter Parties. This provides clear allocation as to the responsibilities, risks and costs arising from cargo fumigation operations on board ships. Other relevant provisions include Clauses 10 (Seaworthy Trim) and 11 (Fumigation) of SYNACOMEX 2000 and Clause 16 of GRAINCON.

Other contracting arrangements may include the division of responsibility for cargo damage and loss. When preparing a fixture, an owner may want to, for example, look to specifically shift responsibility for cargo claims resulting from soya beans loaded off-specification with an excessively high moisture content on to the charterers. The club would in any event usually recommend incorporation of the Inter-Club Agreement (ICA) as a minimum, whereby the ICA serves as a useful mechanism in apportioning responsibility for cargo claims in certain circumstances. See the guide to the ICA on the club's website.

The club has previously provided members with updates on the club's website on the case of the *Yangtze Xing Hua* from the English courts, which dealt with soya bean meal and delays to the cargo. In this case, the Court of Appeal upheld the decision of the Commercial Court³. The case serves as useful confirmation that damage to a cargo which is caused by the prolonged stay of the ship at a port at the express orders of the charterers will be treated as a cargo claim falling under Clause 8(d) of the ICA 1996. It was held that the term 'act' in the phrase 'act or neglect' in Clause 8(d) of the ICA should not be confined to culpable conduct and should be given its broader meaning. The decision confirmed the role of the ICA as a rough and ready mechanism to apportion liability, whereby the ICA deals with causation and not culpability as the measure for apportionment.

Notwithstanding best efforts by members in their contracting arrangements, some factors may be beyond the control of even the most prudent carrier. These may include the various loading and discharge conditions as well as the

acceptable margins for moisture content in Brazil compared to what may be considered as acceptable in China. For example, in Brazil, the generally maximum allowable moisture content of soya beans for export is 14%. However, the national standard set up by China (GB1352-2009) states that moisture content should be equal to or less than 13%. It is important that clear evidence is obtained to show the exact water cargo condition on loading.

The club is aware that the Chinese courts will usually not acknowledge or accept expert findings from other jurisdictions, so a preloading survey demonstrating poor preshipment quality may not help defend the case. The Chinese courts often only accept findings from local experts. The International Group is working with local partners in China to try to raise awareness of this issue such that local experts may in future be able to attest to any deficiencies in the preshipment quality where applicable.

Should members face any potential claims relating to soya beans, the following list of documents is not exhaustive but usually serves as a useful starting point in the investigation of such claims and the club would encourage members to collect and retain at least this information:

- Bill/s of lading
- Mate's receipt/s
- Preloading survey report
- Moisture certificate or certificate of quality at shipment
- Stowage plan
- Ventilation records.

The club has experience of claims for soya beans in various jurisdictions and most notably in China, with the club's Hong Kong office providing valuable insight into the practice of receivers and local courts. In the event that a member is presented with a claim relating to soya beans, they should approach their usual claims contact for assistance.

This advice has been prepared with the kind assistance of the Food and Agricultural Commodities Department of CWA International, London.

3 *Transgrain Shipping (Singapore) Pte v Yangtze Navigation (Hong Kong) Co Ltd (The "YANGTZE XING HUA")* [2017] EWCA Civ. 2107

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