Master’s checklists for loading and carriage of soya beans

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Soya beans are susceptible to mould growth and resultant self-heating under certain conditions. Safe storage time decreases as moisture content and temperature of the beans increase. Thus, soya beans transported over greater distances and involving more time in the stow, have increased potential for damage at discharge due to microbiological instability .

In 2019, Brazil exported over 74 million metric tons of soya beans in bulk - three quarters of the shipments to China. And exports are increasing. According to the Proinde Practical Guidance , most of the Brazilian soya bean shipments in the last years, particularly those departing from the Southern ports, have been sent to Chinese ports via the Cape of Good Hope. Such shipments can take between 35-45 days. In contrast, shipments to the EU countries, take an average of 14-20 days.

Brazilian soya bean export main routes (no scale) Courtesy Proinde Practical Guidance

Soya Beans loaded in Brazil at ambient temperatures of 24-32C and at moisture content of 13-14% may arrive in sound condition to European ports but due to longer transit times, may arrive damaged in Chinese ports.

Ventilation can, to a limited degree, reduce ship sweat and lead to better outcome for the first few centimeters in the stow by decreasing the amount of moisture that drips down onto the top of the stow. Ventilation cannot lessen the caking and discoloration of beans deeper into the stow caused by microbiological instability. Our video interview with Dr. Tim Moss provides an overview of best practices for ventilation of soya bean cargoes.

There have been a number of unfavourable Court decisions in China holding owners responsible for the cargo damage despite expert scientific evidence that the only possible cause of the damage is the inherent vice of the cargo, i.e. due to cargo instability/self-heating/propensities, and that there were no measures or steps that the Master and crew could have taken on board that would have avoided such damage from occurring.

Whilst the investigation carried out and the evidence collected when issues arise is most of the times sufficient for recognised international experts to conclude on causation, the recent Court decisions in China indicate that the Chinese Courts may not feel bound by their findings. The Chinese Courts tend to place more weight on the findings of the local surveyors and the perceived completeness of evidence provided by the vessel on the care exercised to the cargo during loading, throughout the sea passage and up until it is discharged. Any incomplete or missing information or records could lead to detrimental results for the vessel's interests even if such information or records are irrelevant to the cause of some or all of the damage according to expert opinion.

The duty to care for the cargo is an obligation in law under the Hague Visby Rules - a duty the Master and his crew must actively exercise. It is also the Master's responsibility at the time the vessel is loaded to issue a bill of lading and to determine by a reasonable examination of the cargo's external condition whether the cargo is loaded in "apparent good order and condition". A reasonable examination in the context of soya bean cargo means a visual examination during a normal loading sequence. There is no obligation nor is it recommended to sample for moisture content absent unusual appearance in which case, Gard's assistance should be requested.

The English Supreme Court recently confirmed in Volcafe (*Volcafe Ltd and another v Compania Sud Americana de Vapores SA* ([2018] UKSC 61)) that where the cargo was loaded "in apparent good order and condition" and found damaged on outturn, it is the owners who bear the burden of proving that the duty to care for the cargo has been fulfilled. Specifically, the Supreme Court found that "...in order to be able to rely on the exception for inherent vice, the carrier must show either that he took reasonable care of the cargo but the damage occurred nonetheless; or else that whatever reasonable steps might have been taken to protect the cargo from damage would have failed in the face of its inherent propensities"

Whilst China has not ratified the Hague-Visby Rules, the Chinese Maritime Code incorporates similar principles including the duty of care to the cargo and the inherent vice defence. However, in practice, the Chinese Courts will readily draw adverse inferences against the owners if the evidence kept by the ship on cargo care is, in their view, incomplete. For example a lack of sufficient number of pictures to show that the cargo was indeed in apparent good order and condition throughout loading operations or should there be any acts or omissions of the Master or crew, for example ventilation not sufficiently recorded or properly performed, they are prepared to deprive the owners of the inherent vice defence even contrary to expert advice that the damage was inevitable in that there was no causal link between the act/omission and the damage found. Thus in our experience the Chinese Courts adopt a more stringent approach to the burden of proof than Volcafe.

In our Insight on the Volcafe decision , we highlighted the importance of implementing solid and diligent record keeping routines. The Chinese Courts' approach on soya bean cases reinforces the same conclusion - evidence is of paramount importance. In an effort to put Members in the best evidential position possible to defend claims in China for damage to soya beans, we have prepared the following checklists including sample ventilation spreadsheets. The checklists identify the sort of evidence that should ideally be gathered to best demonstrate that there was no lack of cargo care on the part of the Master and crew. Members are encouraged to share the checklists with their operations departments and the Masters and crews on board.

Before Loading

• Maintain records and keep evidencethat the cargo holds have been cleaned and are ready for loading in all respects in line with industry standards for soya beans. Maintain any orders received from shippers/charterers regarding hold preparation. Also maintain records and keep evidence that weathertightness tests of hatch covers (ultrasonic or hose test) have been carried out. In case of orders from shipper/ charterer and/or fumigators to use hatch cover sealant it is recommended that written confirmation of such orders is obtained. Records include last cargo(es), hold cleaning and maintenance, pictures, certificates, logs, hatch cover maintenance and service reports.
• Obtain and review the cargo declarationin order to be informed about the general transport characteristics of the cargo that are relevant to the cargo's "apparent good order and condition". There are no specific care parameters for soya beans other than the "International Code for the Safe Carriage of Grain" (the grain rules) and Masters should refer to this Code when loading soya beans. The quality certificate, which indicates the actual analysis results of the cargo, should be requested where issues arise, i.e. the cargo is not found to be "in apparent good order and condition."
• Seek clear written instructions on ventilationof cargo from shippers /fumigators/ charterers and seek timely clarifications if the instructions are contradictory, for example, the fumigation period exceeds the duration of the voyage. To avoid later dispute it is advisable to forward any instructions from the fumigators to the charterers and ask them to confirm that owners should comply.
• Review the preloading stowage planand loading sequence. The method of loading is determined by the grain rules and normal fuel oil management for heating during the voyage should be applied.

During Loading

• Keep hatch covers closed during periods of rain. Monitor weather forecasts and stand ready to close hatch covers in the event of expected or imminent rain. Log/ keep record of the weather conditions during loading and include references to hatches being closed in anticipation of/during periods of rain in the Statement of Facts to ensure no cargo is exposed to rain. Record not only the rain periods but also record in the deck or port log when the hatch covers were closed/opened by stating the times.
• Conduct visual inspectionthroughout the loading operation to make sure that the cargo is in apparent good order and condition - colour and odour checks, infestation, contamination. Sound soya beans are light yellow in colour.Darkened beans are an indication of damage due to self-heating. When in doubt about the "apparent good order and condition" of the cargo, notify Gard in order to arrange inspection by local surveyors and involve experts if required.
• If the cargo is loaded via a conveyor beltcheck the cargo condition when practically possible; during all stoppages of each hold and when dust settles, take date stamped pictures of the cargo and make the relevant entries in the logbook making reference to the pictures taken. The pictures should be filed electronically. This is invaluable evidence should a claim arise at the discharge port. Take date stamped photographs throughout loading and of how the cargo is loaded; by trucks/ barges/grab/pipe/conveyor etc.
• Keep record of the sequence of loadingwhich is relevant to identifying the cause of damage by comparing to the damage pattern during the discharge. If barges deliver cargo, record barge numbers.
• Take cargo temperaturesusing a calibrated digital temperature probe. These should be taken during loading breaks or upon completion of loading in 2-3 different spots in each hold. The probe should be inserted at least 30-50 cm deep and stay for 5-10 minutes. The temperatures should then be averaged for the entire cargo. This average temperature will form the basis for ventilation in accordance with the 3-degree rule. Elevated cargo temperatures or temperature variations of 5-10 degrees C between different spots or holds indicate self-heating and Gard should be notified and a protest issued to all parties.
• Cargo samples are not to be taken as part of the vessel's standard loading process for soya beans in that it is not within a carrier's obligation to investigate the cargo quality at the time of loading. However, when cargo damage is detected, as part of the investigation that is carried out, representative samples should be taken, according to FOSFA rules and/or as determined by surveyors. Gard will assist in appointing the surveyors and experts to manage sampling when investigation is necessary.
• Moisture content is not to be measured as part of the vessel's standard loading processfor soya beans in that it is a quality parameter over which a carrier has no control/obligation. The time to investigate moisture content is when there is an apparent issue/abnormality with the cargo during loading. Gard will assist in appointing surveyors and experts to manage the investigation of moisture content when investigation is necessary.

• If cargo is not in apparent good order and condition stop loadingand seek Gard's assistance. Depending on the facts and the circumstances of the case Gard may consider taking steps that include but are not limited to the following:

Sea passage

• Keep the cargo dry and properly ventilated(3 Degree Rule or Dew Point Rule). Vents should be closed when weather or sea conditions could result in wetting of the cargo. Subject to these Rules, if the weather forecast permits, vents should be left open at night. Fog and high relative humidity are irrelevant for the purposes of ventilation when either the 3 Degree Rule or Dew Point Rule is followed. More information is available in our video:Best Practices for Ventilation of Soya Bean and Grain cargo
• Gard recommends the 3 Degree Rule. After it is safe to open the vents following the instructions of the fumigator, the cargo holds should be ventilated whenever the temperature outside of the holds is at least 3 degrees below that of the average temperature of the cargo at loading
• Keep proper ventilation records.The attached sample spread sheets show the relevant information that should be entered when following theDew Point Rule or the 3 Degree Rule . It is important to note the reasons why ventilation has been or not been done, for example due to fumigation orders or weather conditions.
• After the fumigation period has elapsed check the drain valves of the hatch covers to ensure they are unblocked and without condensation. If there is condensation, record it in the logbook and support with photographs. Condensation may be an indication of cargo self-heating.
• Where hatch covers are unsealed and where fumigation period has come to end, inspect the cargo twice a week,weather permitting, through access ways on deck from the top of the access ways (no crew should enter inside a hold on standard personnel safety grounds), Record any abnormalities (like sweat) in the log book.
• In case of long delays notify Gardand open hatch covers if/when possible to inspect the cargo. If the hatches are sealed, seek charterers' approval to unseal them for inspection, preferably jointly with them. Check cargo temperatures and take pictures for passing on to charterers/their club, if charterers deny attendance.
• Monitor cargo temperaturedown sounding pipes during the voyage which could alert to any on going cargo self-heating.
• Keep fuel at minimum pumpable temperaturewithin HFOTs adjacent to holds containing cargo to reduce the likelihood of heat transfer and subsequent heat damage to adjacent cargo.
• Record the condition of the cargoat the top of the stows in all holds by comprehensive photographic record when hatch covers are opened for the first time on completion of the voyage for the first cargo inspection by the official local Authorities.

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