The Britannia Steam Ship Insurance Association Limited

Bulk Cargo Matters: Rice and Soya bean

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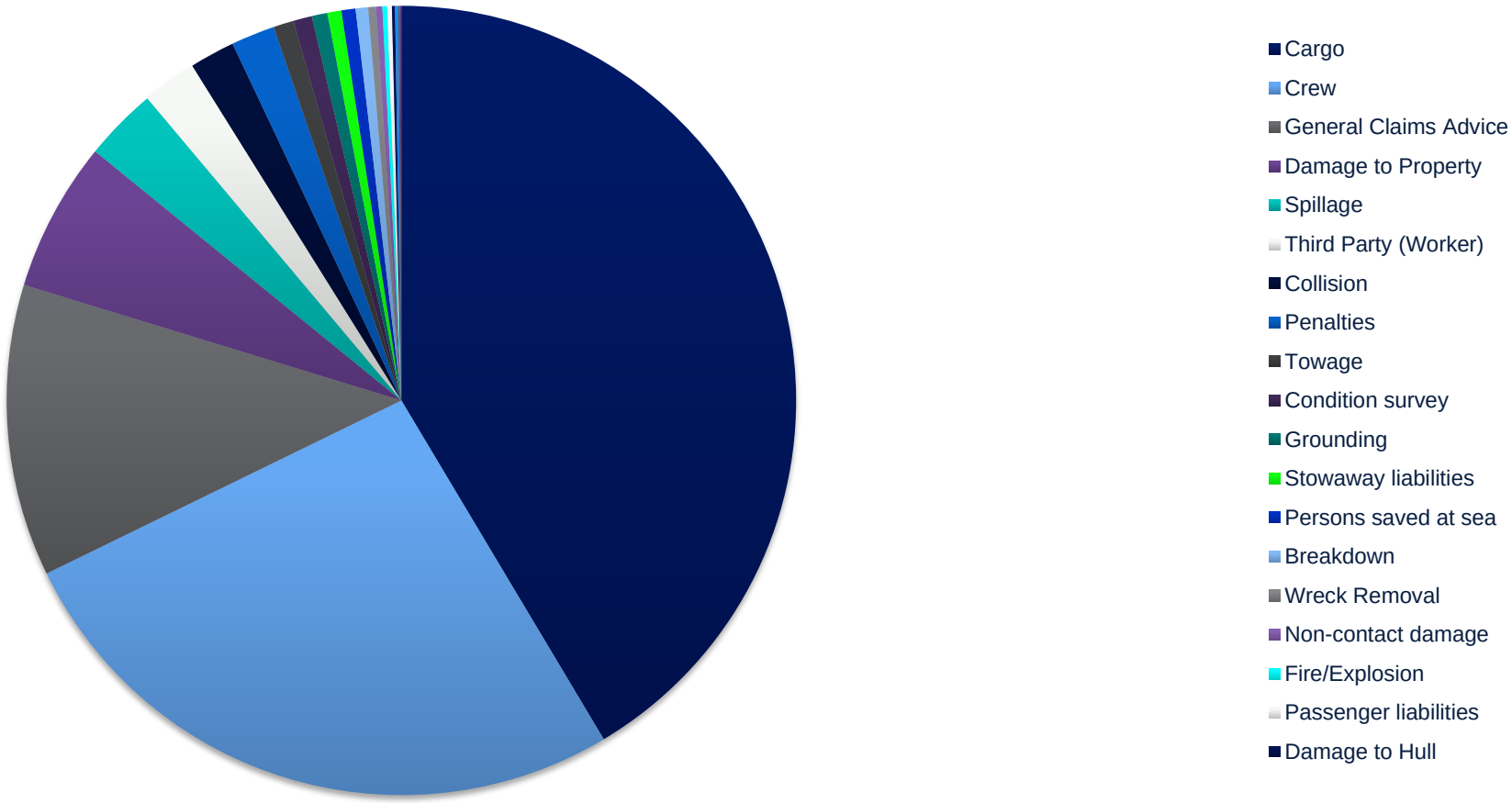
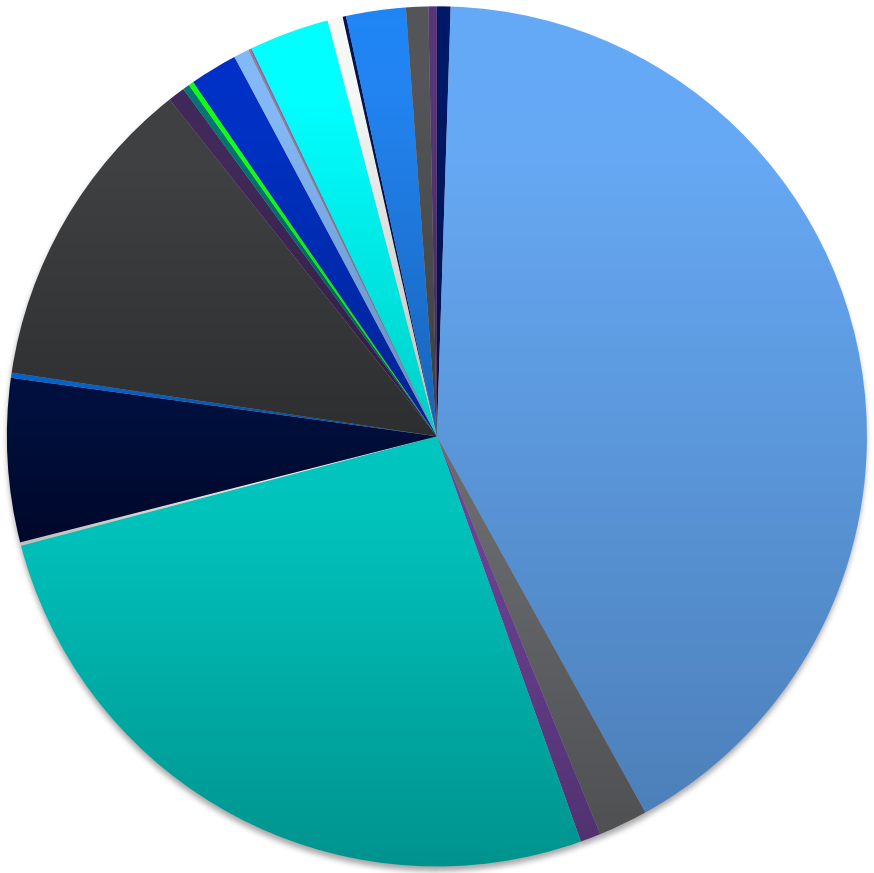
Britannia Loss Prevention Manager

Total Number of Claims 2020 Policy Year



Total Value of Claims 2020 Policy Year



- Breakdown
- Cargo
- Collision
- Condition survey
- Crew
- Damage to Hull
- Damage to Property
- Fire/Explosion
- General Claims Advice
- Grounding
- Non-contact damage
- Passenger liabilities
- Penalties
- Persons saved at sea
- Special cover - carriage of cargo
- Special insurance cover
- Spillage
- Stowaway liabilities
- Third Party (Visitor)

Upward trend

Year	Count of rice cargo claims	Value of rice cargo	Count of Soybean cargo (Bulk)	Value of Soyabean cargo (Bulk)
2017	8	18335.70	9	115846.00
2018	13	148694.26	20	140259.06
2019	11	316856.76	16	1738918.80
Total	32	483,886.72	45	1,995,023.86

Key claims rice

- Shortage
- Wet
- Mainly in west Africa

Soya bean

Soya bean: Heat damaged

- High value cargo
- Damaged: burnt (black), heat damaged (dark brown), damaged by heat (light brown)
- When heated, components of the beans react becomes dark
- Caking - the moulds growth to certain extent can be sufficient to cover the bean kernels the bean kernels become bound together in a solid mass
- Other quality issues: Cause additional cost for refining

Heat damaged: External

- Fuel oil tanks - toasted caked close to the tanks

- Temperature log

Heat damaged: Water ingress

- Hatch cover
- Ballast and bilge system
- Test and maintenance records

Heat damage: Self heating

- Ventilation may not help
- Caked cargo not localised
- Discoloured cargo
- No sign of water ingress

Heat damaged: Self heating

- Ventilation
- Ventilations records
- Dew point rule or 3 degrees rule
- Charterer’s instruction

Study on soya bean storage – Prolong voyage

Moisture Content (%)	--- Grain Temperature (°F) ---					
	30°	40°	50°	60°	70°	80°
	Approximate Allowable Storage Time (Days)					
11	*	*	*	*	200	140
12	*	*	*	240	125	70
13	*	*	230	120	70	40
14	*	280	130	75	45	20
15	*	200	90	50	30	15
16	*	140	70	35	20	10
17	*	90	50	25	14	7
19	190	60	30	15	8	3
21	130	40	15	10	6	2
23	90	35	12	8	5	2
25	70	30	10	7	4	2
27	60	25	5	5	3	1

Ref September 5, 2018 Ken Hellevang - North Dakota State University Extension Agricultural Engineer

Soya bean summary

- What percentage is heat damaged?
- Total damage against could be very low
- Load port sample
- Loading condition, temperature
- Records
- Deck log book for weather
- Type of ventilators

Les Rice

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Cargo Consultant and Expert Witness

Director of Cargo Consult Ltd

Principal causes of loss in bagged rice

- Spoilage caused by external moisture
- Spoilage caused by acquired temperature and moisture content at loading
- Short delivery of cargo

Most commonly encountered causes of loss in soya beans

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- Failure to properly ventilate cargo - condensation moisture causes high humidity at the peripheries of the stowages and attack by spoilage organisms

- Boundary heating of cargo holds - mainly fuel oil tanks - causing moisture migration. Localised accumulation of moisture in the cargo mass causes high relative humidity favourable to spoilage organisms

- Fungal heating in moist beans (caused by inherent moisture content, ship's sweat, ingress of water or boundary heating) elevates cargo temperatures sufficiently for oxidation of oils inherent in the beans, an exothermic process giving rise to extensive deterioration in the cargo mass

Causes that apply equally to both rice and soya beans

Moisture damage:

- Ingress of water
- Condensation
- Inherent vice

Reducing the scope for ingress

Implementing the following measures will pay significant dividends:

- Ensure proper planned maintenance of hatch cover weathertight sealing arrangement in accordance with manufacturer’s recommendations
- Conduct regular ultrasonic leak testing of hatch covers using a class approved device
- Ensure deck officers maintain a diligent weather watch at all times during cargo loading and discharge operations
- Always close hatch covers in holds which are not working cargo

Reducing the scope for condensation

The three degree rule of ventilation:

- For bagged rice and bulk soya beans, the three degree rule of ventilation is preferred over the comparative dew point principle
- Making ventilation decisions based on dew points relies on crew measuring wet and dry bulb temperatures in way of the access hatches
- Analysis of a very large temperature data set from many voyages between Asia and West Africa, shows a clear pattern whereby the observed ‘cargo’ temperature fluctuates in accordance with changes in outside air temperatures. In actual fact, the temperature of the majority of cargo within the mass remains constant throughout even the longest ocean voyages

It follows that the dew point principle is not reliable in these particular circumstances.

Recommended measures for rice and soya bean ventilation

- Ventilate cargo when the outside air temperature is 3°C or more below the temperature of the cargo at the time of loading.
- Take many temperature measurements of the cargo throughout loading using handheld infrared thermometers. Calculate the average cargo temperature separately for each hold. This is the reference temperature for the voyage.

N.B. For the purposes of the three degree rule, the cargo temperature cannot be determined following completion of loading. If the temperature has not been recorded during loading, the Chief Officer is required to make ventilation decisions based on the comparative dew point principle.

Recommended measures for rice and soya bean ventilation

- It is important when applying the three degree rule to also record dew point temperatures and to conduct a visual inspection of the inside boundaries of the cargo hold in way of the access hatches and ventilators. This will give an indication of the problem, such as condensation on the inside steelwork despite ventilation being carried out.
- Ventilate the cargo at all times when ventilation is required to ventilate to prevent ship's sweat.

N.B. There is no scientific reason for not ventilating cargo at night time. There is an increasing trend towards suspending cargo ventilation e.g. between 16:00 hours and 08:00 hours. 16 hours in each 24 hour period represents 66% reduction in ventilation effort. In such circumstances, the vessel has no defence against the claim for moisture damage consistent with ship's sweat.

Stowage and dunnaging of bagged rice

Dunnage materials

- If a rice cargo is ‘dry’ in terms of the relative humidity of the product (a function of moisture content and temperature), and therefore safe for transportation by sea, then only a minimum of dunnaging materials are required, such polyethylene sheeting
- Elaborate dunnage systems using layers of Kraft paper and polystyrene slabs serve no practical purpose and are to large extent unnecessary

Ventilation channels

- The majority of rice is carried in bulk carriers with naturally ventilated cargo holds. With a few exceptions, the cargo holds are afforded only surface ventilation. In these circumstances creating a lattice of ventilation channels in a block stowage of bags is unnecessary
- Without ventilation channels the same mass of cargo could be stowed in the compartment leaving a deeper headspace thereby making surface ventilation of the cargo more effective, and reducing the scope for ship’s sweat.

Ventilation channels

So called ‘ventilation channels’ are simply trenches in which there is no communication of air. Arguably, the only practical benefit is to allow fumigant gas to descend quickly to the bottom of the stowage. However, efficient circulation of fumigant gas can be achieved by other means, such as J-system pipes, without the need to leave full height trenches in the cargo.

Inherent vice

- Inherent vice in bulk soya beans or bagged rice most often takes the form of an unsafe moisture content, i.e. a moisture content producing high relative humidity within the cargo mass, which allows spoilage organisms to proliferate.
- Other factors include contamination, infestation, objectionable odour or similar.
- Microbial activity in a humid cargo (caused by high moisture content at loading) produces heat and moisture within the bulk.
- Large masses of soya beans and rice are characterised by considerable thermal inertia; biological heat produced within the bulk will not dissipate throughout the mass but accumulates locally to create ‘hotspots’.
- Biological heating within a mass of rice or soya beans cannot be controlled by surface ventilation of the cargo.
- Once oxidation of inherently unstable soya beans is underway then, arguably, cargo ventilation may simply fuel the processes of deterioration.

Inherent vice

- Generally speaking, high moisture content will not be evident at the time of loading. Therefore, a cargo of rice or soya beans may appear to be in apparent good order and condition of the time loading. It may nevertheless be unsafe for shipment due to the high moisture content and/or high-temperature of the goods.
- The Master is required to form an honest view, which could be properly held by a reasonably observant Master.
- In broad terms, if the cargo is free from obvious disorders, then the Master cannot be criticised for issuing clean mates' receipts and for signing bills of lading conforming with the mates' receipts.
- It is imperative, however, that a shipowner can demonstrate that the Master and ship's officers diligently monitored the condition of the cargo during loading. There should be entries in contemporaneous records such as the Chief Officer's notebook and the deck log book.
- Photographs and records of cargo temperatures during loading are important.

Inherent vice

- If the temperatures of rice or soya recorded during loading are significantly warmer than the prevailing ambient temperature, then the Master should seek advice from his owner and P&I Club
- Spoilage in grain and soya bean cargoes can be shown to be due to inherent physical characteristics of the goods at the time of loading, if it is possible to eliminate the potential contributory or causative factors which are in the control of the vessel
- If the shipowner is able to demonstrate proper stowage, correct and effective cargo ventilation at all times, with well documented records, absence of water ingress (comprehensive photographs) and an absence of boundary heating (fuel oil tank temperature records) then inherent moisture content becomes the most likely causation scenario

Fumigation - Rice

- The principal tropical ports at which rice is loaded are structurally infested by important insect grain pests. Nevertheless, fumigation of the cargo once loaded, if carried out correctly, will eradicate all insect pests in a rice cargo
- There is no scientific basis for maintaining a cargo under fumigation for more than 10 days for pest control purposes. The exceptions are rice from Northern China or the USA to West Africa where it may not be necessary to ventilate to prevent ship's sweat. In such cases there may be a rational argument for maintaining the holds under gas for periods of three weeks or more
- However, in a voyage from South Asia or Southeast Asia to West Africa via the Cape of Good Hope, a fumigation period of more than 10 days will very likely result in ship's sweat and wetting of cargo
- Where instructions from shippers or charterers for fumigation and ventilation of cargo are unclear or confusing, or otherwise the Master is uneasy for whatever reason, the shipowner should seek written confirmation and explanation of the relevant carriage instructions from the charterer

Fumigation – Soya beans

- In voyages from Brazil and USA to China and the Middle East, there is a tendency for charterers to recommend very long periods fumigation, i.e. with no measurement of cargo hold temperatures and no cargo ventilation
- In several major claims resulting from extensive moisture damage, these long periods under gas have been shown to be the operative cause of condensation occurring during the voyage
- There is no benefit to maintaining the holds in a sealed condition if the initial fumigation has been effective
- If following an appropriate period, say 10 days, environmental conditions are conducive to condensation occurring inside the holds (ship's sweat), then the cargo should be ventilated if condensation is to be prevented
- The Master should seek clarification from the charterer's ship operator and from the ship owner. The shipowner should seek expert advice via its P&I Club at the earliest stage

Heating of Fuel Oil Tanks

- Undue heating of fuel oil tanks bounding cargo holds radiates heat into the cargo compartments and raises the dew point temperature of the air inside the cargo mass. This overall rise in temperature increases the scope for condensation (ship's sweat)
- If FO tanks in way of cargo holds are maintained at unsafe or unnecessarily high temperatures, then there has to be greater ventilation effort if condensation is to be avoided (24 hour ventilation, controlled opening of hatch covers, where is it safe to do so, use of portable electric fans, etc)
- It is simpler to reduce the oil tank temperatures than to implement measures to increase ventilation effort

Heating of Fuel Oil Tanks (cont.)

- The charterer should be asked to provide information to the vessel in respect of heating of HFO tanks and FO temperatures to be maintained. This should include the ‘pour point’ of the HFO fuel in particular
- There should be communication between the shipowner and the vessel’s Master, and between the Master and the Chief Engineer on this specific issue, to ensure absolutely that the engineers comprehend the safe temperature thresholds of the FO tanks in way of cargo holds
- Unwarranted heating of fuel oil tanks is a particular problem when carrying soya beans, particularly in longer ocean voyages

Bagged rice – avoiding shortage claims in West Africa

- It is strongly recommended that the shipowner attempts to persuade the charterer to agree to a tally protocol in plenty of time before arrival at the discharge port
- The use of protocols, agreed between shipowners, charterers and cargo underwriters, with expressly agreed methods for tallying the bags during discharge, reduces the scope for dispute. It has been demonstrated that disputes as to outturn quantities can be virtually eliminated in some circumstances

Justin Olley

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Britannia Fleet Manager

Who can bring a claim?

- “Cargo Interests:”
- Lawful holder of the Bill of Lading (COGSA 1992). The claimant does not need to be the owner of the cargo, they simply need to show that they have title to it
- Rights may have been subrogated to cargo insurer who in turn may instruct a recovery agent
- Claims in Tort and bailment, will require the claimant to have owed the cargo at the time that the damage or loss occurred. See The Starsin [2000] 1 Lloyd’s Rep 85

Who can “cargo interests” bring a claim against?

- The carrier, but who is the carrier?

- Owner (or Bareboat Charterer) of the ship will be the carrier if the Bill of Lading has been signed by The Master, or (for example) the agent on behalf of the Master, with the necessary authority

- (Time) Charterers, or Sub Charterers (which may be Time Charterers on back to back terms or Voyage Charterers) if the bill is signed of their behalf

Types of claims

Bagged rice / soya – shortage at the Port of Discharge:

- Importance of tallies and load surveys at the Port Of Loading and Port Of Discharge. The, normally, large number of bags loaded mean it is crucial that the tallies are as accurate as possible
- If Members are concerned, request that the Association appoints a surveyor
- If the tally only takes place at the consignee's premises cargo may be lost or pilfered en-route

Bagged rice or bulk soya

- Bagged rice – dropped or damaged by slings?
- The crew should: take photographs, obtain evidence of any stevedore negligence and issue a Letter Of Protest (LOP) as necessary

Bagged Soya

- discharged by grabs and overflowing from trucks onto the dock
- As stated in the previous slide - evidence is crucial!

Wet damage / mould / taint / infestation

Where did the damage occur?

Pre-carriage?

- Manner in which the cargo was harvested, dried and stored. Moisture content of the cargo pre-loading
- Bagged cargo & bulk cargo, how was it stored pre-shipment? Weather conditions at the POL
- Infestation

During loading?

- Weather conditions – importance of checking forecast and ensuring that hatches can be closed quickly

Water / moisture damage

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During carriage?

- Water ingress through hatch covers, including packing and drain channels
- Condensation - variations in ambient air and sea water temperatures leading to the formation of condensation and, for bagged cargoes, adequate ventilation channels should be provided within the stow during loading. Location and number of these channels determined by the carriage instructions

Post delivery

- All of the factors previously listed
- Decision in *Volcafe v CSAV [2018] UKSC 61*

Allocation of responsibility - Time Charterers

- Common law position, owners obliged to load stow and trim and discharge the cargo. However carefully check CP provisions which may seek to transfer obligations:

- NYPE ’93 – clause 8 “Charterers shall perform all cargo handling, including but not limited to loading, stowing, trimming, lashing, securing, dunnaging, unlashing, discharging, and tallying, at their risk and expense, under the supervision of the Master.” But if “*and responsibility*” is added after “supervision” responsibility stays with Owners.

Water / moisture damage

During carriage?

- Water ingress through hatch covers, including packing and drain channels.
- Condensation - variations in ambient air and sea water temperatures leading to the formation of condensation and, for bagged cargoes, adequate ventilation channels should be provided within the stow during loading. Location and number of these channels determined by the carriage instructions.

Post delivery

- All of the factors previously listed.
- Decision in *Volcafe v CSAV [2018] UKSC 61*

Inter-Club Agreement (ICA) (as amended 1 Sept 2011)

- A mechanism for apportionment of liability for cargo claim between Owners and Charterers, incorporated in almost all dry bulk charters.

The ICA provides:

- (8)(a) Claims arising out of unseaworthiness and / or fault of navigation or management of the vessel.

  100 % Owners.

Save where the Owner proves that the unseaworthiness was caused by the loading, stowage, lashing, discharge or other handling of the cargo, in which case the claim shall be apportioned under sub-clause (b).

- (b) Claims in fact arising out of the loading, stowage, lashing, discharge, storage or other handling of cargo:

  100% Charterer

unless the words "and responsibility" are added in clause 8 or there is a similar amendment making the Master responsible for cargo handling in which case:

  50% Charterers 50% Owners

save where the Charterer proves that the failure properly to load, stow, lash, discharge or handle the cargo

  100% Owners

Inter-Club Agreement (ICA) (as amended 1 Sept 2011) cont

- (c) Subject to (a) and (b) above, claims for shortage or overcarriage:
50% Charterers 50% Owners

unless there is clear and irrefutable evidence that the claim arose out of pilferage or act or neglect by one or the other (including their servants or sub-contractors) in which case that party shall then bear 100% of the claim.

- (d) All other cargo claims whatsoever (including claims for delay to cargo):
50% Charterers 50% Owners

unless there is clear and irrefutable evidence that the claim arose out of the act or neglect of the one or the other (including their servants or sub-contractors) in which case that party shall then bear 100% of the claim.

See ** *Transgrain Shipping (Singapore) Pte Ltd v. Yangtze Navigation (Hong Kong) Co Ltd (Yangtze Xing Hua)*[2017] EWCA Civ 2107

Facts: soya bean meal carried from S America to Iran. Ship waited to discharge cargo for 4 months

CoA held : Act or neglect does not stretch to culpable act, merely mechanical.

Voyage Charters

- If there is no express clause in a voyage charter allocating responsibility for cargo handing it will rest with Owners,

- Synacomex - clause 5 “[cargo loading at] expense and risk of Shippers/Charterers and 'Receivers/Charterers’” SEA MIRROR’[2015] 2 Lloyds Rep 395. Held shipowners not responsible, responsibility transferred to charterers

- Gencon 1994 commonly used for carriage of rice and soya bean: If there is no express clause allocating responsibility it will rest with Owners. Under clause 5: responsibility for loading and discharging the cargo is for the charterers:

Gencon 1994 clause 5.

The cargo shall be brought into the holds, loaded, stowed and/or trimmed, tallied, lashed and/or secured and taken from the holds and **discharged by the Charterers, free of any risk, liability and expense whatsoever to the Owners**. The charterers shall provide and lay all dunnage material as required for the proper stowage and protection of the cargo on board, the owners allowing the use of all dunnage available on board. The charterers shall be responsible for and pay the cost of removing their dunnage of the cargo under this charter party and time to count until dunnage has been removed.

FIOS (Free In, Out, Stowed)

- Under a charterparty fixed on a FIOS basis, responsibility of loading, stowing and discharging remains with the charterer

- The Owner is usually free of risks and expenses in respect of cargo damage, unless the alleged damage is caused by owners or owners' agents

- Confirmed in *The Jordan II [2003] 2 Lloyd's Rep. 319,* House of Lords decision where the position of English law settled insofar as the carrier is able to contract out responsibility for loading and stowing, dunnage and securing the cargo

Conclusions

1. Check the relevant CP provisions in advance and / or amend them on fixing in your favour!

2. As par as possible take preventative measures:
   - Obtain information about the load and discharge ports and nature of the cargo in advance from your Club and their correspondents
   - If it is recommended, arrange for load port of the cargo and tally surveys

3. Obtain and record evidence
   - If recommended, arrange for a survey at the port of discharge
   - Make sure the surveyor takes plenty of photos (and the crew can take them too!)
   - If necessary, obtain evidence early on from a cargo expert

Thank you

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