



Soya bean export season is peaking: prepare for claims

With the export season for Brazilian soya beans well underway, we share recommendations on how best to avoid claims that are linked to the inherent instability of this cargo.

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Written by Kim Jefferies, Mark Russell

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Brazil is the world's top exporter of soya beans with about 75 % of exports going to China. According to the US Department of Agriculture Foreign Agricultural Service [Report](#) issued in January, around 157 million metric tons of soya beans will be produced by Brazil for the 2023/2024 season. The export typically begins in January rising rapidly to a peak in February/March before tapering off.

The problem

Soya beans naturally contain mould spores that under certain conditions grow and produce heat within a stow which can result in caking, visible mould and darkening of the beans. Whether soya beans will self-heat in this way is determined by the moisture content of the beans at loading, the temperature of the beans when loaded and the time the beans are stored after harvest and during the voyage. The higher the moisture content and temperature at loading, the shorter the safe onboard storage time for the beans. This inherent characteristic of soya beans (as well as other grain cargos) is called microbiological instability. Scientist Dr. Tim Moss from Brookes Bell describes the process in [this video](#).

International Group P&I Clubs including Gard continue to experience high value claims for damage to soya beans carried from Brazil to China caused by microbiological instability. This is despite soya beans being loaded in Brazil in apparent good order but arriving in damaged condition without fault of the vessel.

Strict burden of proof

In November 2023, the China Maritime Law Association (CMLA) hosted a “Soybean Transportation & Dispute Resolution” seminar, convening representatives from all of the International Group P&I Clubs. This presented a unique opportunity for all the stakeholders to discuss the safe transportation of soybeans, as well as considerations for handling future soybean claims. The topics discussed included the natural process of self-heating due to microbiological instability and the limited effect of ventilation. Although progress has been made in exchanging views and experiences, it is expected that the Chinese courts will continue to apply a very strict burden of proof on the carrier, making it difficult to establish the liability exemption based on natural properties or inherent vice.

Some losses are inevitable

The following chart demonstrates the relationship between the three key factors: the higher the temperature of the beans at loading, and the higher the moisture content, the fewer safe storage days.

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Approximate storage time for soya beans

MC (%)	Cargo Temperature (°C)					
	- 1.11 (30°F)	4.44 (40°F)	10 (50°F)	15.56 (60°F)	21.11 (70°F)	26.67 (80°F)
Approximate safe storage in days (cumulative)						
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

*Allowable storage time exceeds 300 days. **Maximum MC for storage recommended by MAPA. *** Maximum MC under ANEC standard contracts

Table 3: Approximate allowable storage time for soya beans and MC limits. Source: North Dakota State University/MAPA/ANEC

As highlighted in red in the table, the current maximum moisture content recommended by the Brazilian Ministry of Agriculture, Livestock and Supply (MAPA) and incorporated in the Brazilian Association of Grain Exporters (ANEC) standard sale contracts, is 14 %. The safe storage time at this moisture level and at expected ambient temperatures in Brazil during loading, will often reduce the safe storage time to less than the voyage time needed from Brazil to various Chinese ports. Add to that the time in storage prior to loading, and it becomes clear that some losses are inevitable, despite best efforts by owners.

To address this issue and to bring Brazil in line with other producing nations, MAPA recommended in February 2022 to reduce the maximum moisture content to 13%. As reported by [Proinde](#) , the talks between the processors and traders who favour the reduction and the producers opposing it have now reached a stalemate. The tension point is that the producers sell their soya beans based on weight and a reduction in moisture content reduces weight and thus, without compensation, reduces profits.

Our recommendations

As export season progresses and soya beans arrive in China, we can expect claims that are due to inherent microbiological instability of this cargo. To best prepare to defend claims, Gard recommends:

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- Careful monitoring of the cargo at loading and suspension of loading if signs of heating or blackening are already present. Such conditions as well as presence of foreign materials at loading should be reported to the Club so expert assistance can be provided. More information can be found in our article:

[Heat damage in soya bean cargoes – the importance of inspections](#)

- Although ventilation will only affect the topmost layer of the stow, showing proper ventilation and record keeping will assist in defending claims in China where the burden of proof is on the vessel to show that ventilation was properly preformed. We have prepared a

[Master's checklists for loading and carriage of soya beans](#)

that includes detailed recommendations for cargo handling and record keeping.

For further information see our Soya Bean cargo damage [topic page](#) .

We thank Proinde for sharing their report.

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