1.10 Soya beans: Ship's sweat caused cargo damage

A vessel loaded a cargo of soya beans in bulk at Santarem, Brazil in January due for discharge in Qingdao, China. The vessel sailed around the Cape of Good Hope and bunkered in Singapore, before continuing to Qingdao, China. During the first 15 days of the voyage, fumigation prohibited ventilation of the holds.

Delay at anchorage

The vessel arrived at Qingdao anchorage in March. The vessel was delayed at anchorage for over one month. No ventilation had been carried out during the voyage to China, but ventilation started in late March according to the Three Degree Rule. During the delay at anchorage, the surface of the cargo in all five holds started to deteriorate and mould growth became visible. As the vessel was only equipped with natural ventilation the effectiveness of this ventilation whilst the vessel was stationary at anchor was therefore extremely limited.

The voyage and delay totalled 105 days. According to the Three Degree Rule, there were between nine and 11 days (depending on the hold) when ventilation was required but not carried out. This means that for most of the voyage the correct ventilation decision was made.

Mould damaged cargo

The vessel eventually berthed and began discharging in late April. The first stages of discharge segregated the surface layers of mould-damaged cargo from each of the five holds and this was stored in a separate warehouse facility.

What can we learn?

- Inspections and cargo temperatures revealed heat damage throughout the stow, not only at the surface although the cargo condition gradually improved with depth.
- Representative sampling and analysis of the 'sound' cargo revealed heat damage throughout the whole cargo, which was worse in the quantity initially segregated from the surface.
- It was concluded that most of the cargo damage was caused by the condition of the cargo at loading and the subsequent delay at anchorage in Qingdao.
- The mould damage on the surface was exacerbated by the self-heating within the cargo which led to condensation in the headspace and occurred despite the crew's ventilation efforts.
- It is unlikely that the crew could have taken any further action that would have had a significant impact on the condition of the cargo at discharge.