

UK P&I CLUB



# LP Bulletin

Thursday 01<sup>st</sup> June 2017

## Bulletin 1130 - 06/17 – Benefits of Ventilation

**Further to a number of claims received by the Club of damaged grain cargos due to cargo sweat. The Club's Loss Prevention Department offers the below advice to Member's vessels on the benefits of ventilation to avoid cargo sweat.**

Cargo Sweat can be caused primarily by either cargo heating up or from a vessel transiting from a warmer to cooler environment.

**Heating up** - If there is a temperature differential between the outside of the stow and the inside, moisture migration will result. Such moisture migration will also occur when one part of the bulk heats up for any reason, eg insect infestation, microbiological activity or proximity to a hot bulkhead. In all these circumstances, moisture will migrate from the warmer region to colder parts of the stow.

**Warmer to Cooler** - grain loaded warm and subjected to peripheral cooling will result in the primary moisture movement being in a vertical direction, so more water will pass towards the top of the cargo than towards the sides. If it is not possible to remove the water migrating to the top region of the cargo by ventilation, more damage may be anticipated in the top layers than at the sides.

To counteract both forms of cargo sweat the easiest remedy is that of ventilation. As described below:

For vessels fitted with natural or mechanical ventilation, the moist air may be continuously removed from the headspace above the cargo to reduce or eliminate condensation occurring on the deckhead. However, it must be remembered that the air used for ventilation is at the same temperature as, or below, the temperature of the deckhead and hatch covers. If the ventilating air is cool, the immediate effect will be to take up moisture vapour in the surface layers of the cargo, because the vapour pressure. At the same time, the surface of the cargo will be cooled, both directly by contact with the cooler ventilating air and as a result of evaporation of moisture. Surface ventilation is also useful in cooling cargo that is heating, minimising the increase in temperature that might cause further deterioration.

### Source of Information

Loss Prevention