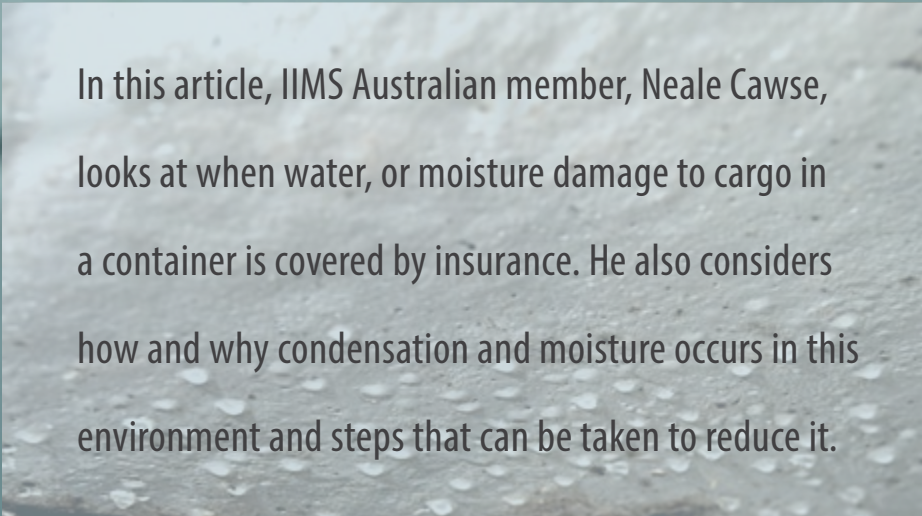


INSURED PERIL OR NOT INSURED PERIL: THAT IS THE QUESTION!

The effect of water moisture damage on containerised cargo



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A close-up photograph showing numerous small, clear water droplets scattered across a light-colored, textured surface, likely representing moisture damage to cargo.

In this article, IIMS Australian member, Neale Cawse, looks at when water, or moisture damage to cargo in a container is covered by insurance. He also considers how and why condensation and moisture occurs in this environment and steps that can be taken to reduce it.

We have all heard stories of import cargo arriving with water or moisture damage and the Insured/Consignee complaining bitterly when their claim is denied, believing that they have paid a lot of money for insurance that is worthless. It is even more frustrating when we come across these claims with Insureds/Consignees that are regularly importing (or exporting) goods.

INSURED PERIL

So when is Water or Moisture Damage to Cargo in a Container covered by Insurance? Firstly, let's make a few assumptions to keep this simple: we will consider the cargo as being a Full Container Load (FCL) and that the Policy coverage is *Institute Cargo Clauses (A) [ICC (A)]*, which is All Risks.

So what does "**All Risks**" mean? Well "All Risks" covers things that happen unexpectedly, by accident or chance, also described as "**Fortuitous**". It DOES NOT cover things that are inevitable or almost certain to happen, or things that would be in control of the Assured to prevent.

When is water or moisture damage to containerised cargo considered "fortuitous" and covered under ICC (A)?

Well, when there is obvious damage to a container that can allow water ingress inside the container affecting the cargo inside. This damage normally occurs as a result of incorrect or poor handling during loading and unloading operations, as a result of severe weather events during sea voyages, or a road transport accident.

Other ways water or moisture can enter a container is if the container is sitting in water where it could enter from underneath through the container floor or through the container doors. This can occur for example if water enters the hold of a ship, or when there is torrential rainfall and flooding while the container is at a wharf waiting for loading onto a ship. When this occurs, there is normally a "high tide" mark around the container indicating the water depth.

NOT INSURED PERIL

So how does cargo inside a container that has not been damaged, holed or been affected by rising water, get wet? **Condensation.**





Very small differences in the cargo and voyage conditions can have a huge effect on the outcome. That is why you may have 4 perfectly safe shipments and the 5th may be a disaster. This means that there is always a risk of moisture damage in the next shipment, even if the last one was ok; and this is why water damage by condensation is not considered a "Fortuity" by Insurers.

HOW DOES CONDENSATION OCCUR?

All containers contain moisture from the time of loading and in the cargo itself. No container is airtight.

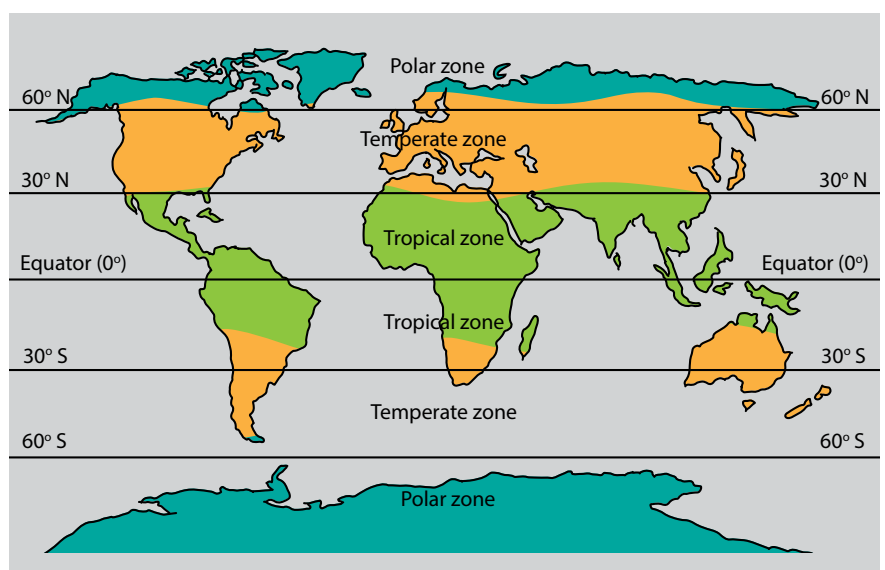
Changes in the climate during transport by road, inland waterway vessel or rail, and particularly when on board an ocean-going vessel as it passes through various climatic zones, affect the amount of condensation.

Extreme climatic conditions can occur in winter at temperatures below freezing point, when passing through tropical climatic zones or when moving from the tropics to temperate climatic zones. Remember that almost every container that enters and leaves Australia goes through at least one of the tropical climates.

External "Tide Line" on container and subsequent wetting of cargo inside.

While containers are an efficient and economical method of transporting almost any kind of cargo, placing cargo inside a steel box carries the risk of moisture damage no matter what the cargo or how it is being transported as a result of condensation.

Condensation on the ceilings and walls of a container is known as "container rain", and "cargo sweat" when on the cargo itself. There are many factors that affect the amount of condensation and therefore the potential damage to cargo, but one thing that does not change is that there will always be condensation.



Container condensation occurs when the skin of the container is cooled to a temperature below the "dewpoint" of the air inside the container, causing water droplets to form on the inside walls and roof, which may run down the walls or "rain" onto the top of cargo.

Cargo sweating occurs when the surface of the cargo is cooler than the dew point of the air outside the container, causing water droplets to form (condense) on the cooler areas of the cargo itself.

The temperature changes during transit are fairly straight forward, direct solar heating of the container during the day and cooling at night, combined with high humidity when passing through tropical zones. But the other important ingredient for condensation/sweating to occur is water content in the container; how does it get there?

Moisture is present in timber dunnage and pallets, the cargo itself, as well as the air inside the container, remembering that the more humid the conditions during loading, the more moisture contained in the air in the container.

Timber used in packaging and dunnage can contain a considerable amount of moisture, especially if the timber is green or has not been stored in a dry covered area.

For condensation to occur in a container, 3 specific conditions must exist simultaneously:

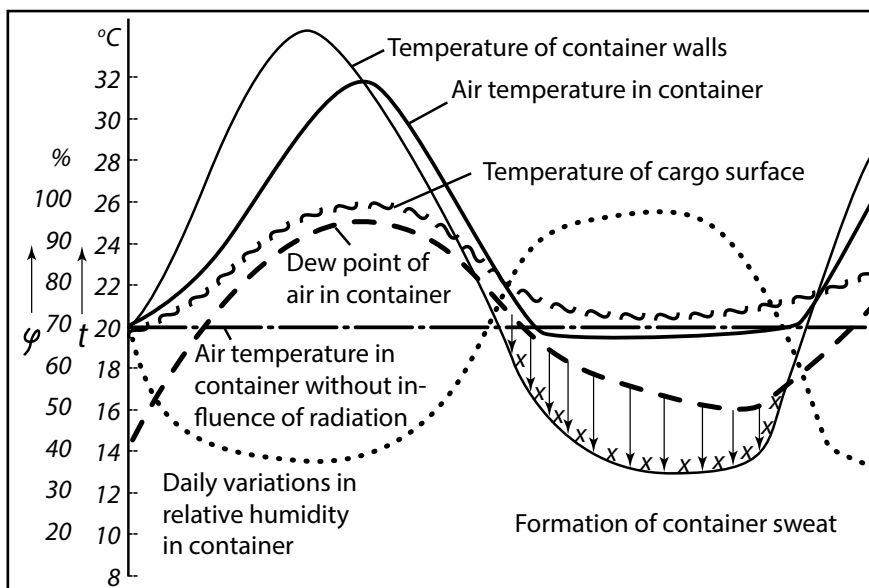
1. A source of water vapour must be present
2. A temperature difference must occur
3. A pathway must exist to move water vapour to the cold surface.

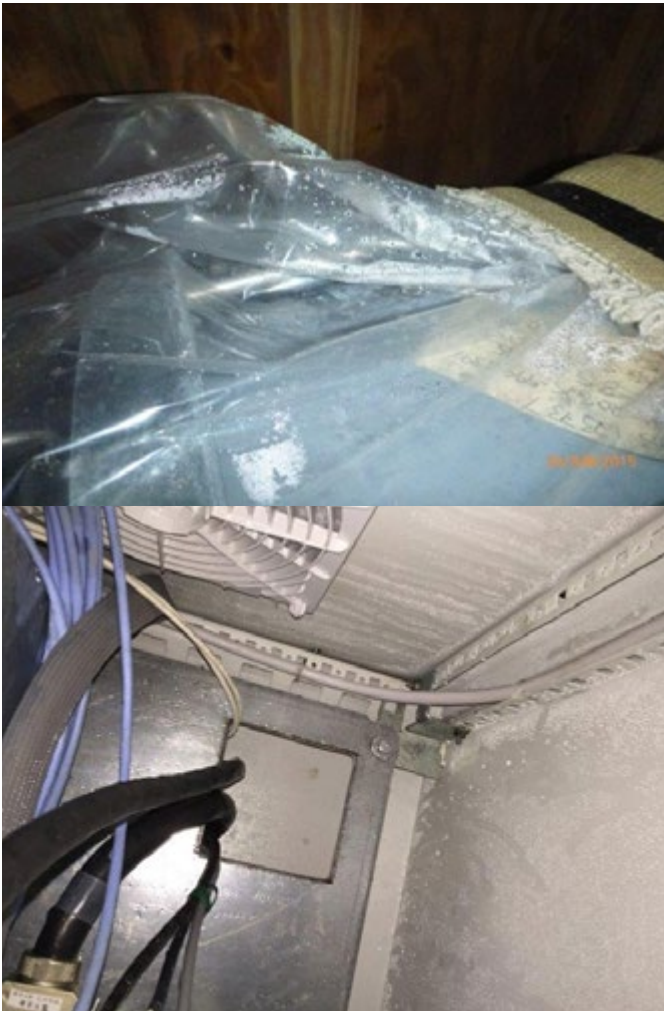
Main sources of water vapour:

- Water left in the container after cleaning
- Ambient air
- Wooden pallets;
- Timber flooring, dunnage, etc.

Main causes of temperature differentiation:

- Different temperatures of individual cargo pieces in the stow
- Different temperatures between cargo pieces and containers during loading
- Changes of temperature and/ or air flow inside the container
- Changes of temperature outside the container





Condensation inside shrink wrapping and directly on cargo surfaces.

Contributing factors to temperature differentiation:

- Exposure of the container to direct sunlight
- Exposure of the container to a clear night sky
- Dew or frost on the outside of the container
- Stowing the container near a source of heat
- Stowing the container near a refrigerated space
- Different temperatures between cargo pieces and ambient air at the time of unloading (opening of the doors)
- Moving a container from a shaded area to sunlight exposure
- Moving a container from an open area to a shaded area, where extreme changes in ambient temperature can occur.



Poorly stored pallets.



Mould growth on container and cargo surfaces as a result of moisture inside container.

Pathway for migration of water vapour:

- In the container itself
- Between the cargo pieces and the container wall
- Between adjacent cargo pieces

HOW TO REDUCE CONDENSATION?

While it is almost impossible to completely eradicate moisture from a container during shipping, there are many things that can be addressed to minimise condensation, and to protect the cargo:

- Containers must be completely dried after cleaning.
- Only use dry pallets and dunnage.

- Pallets should be stored in a dry, covered area before loading.
- Pallets stored outside, even under tarps, can quickly absorb significant moisture.
- Where possible, load GP containers under cover.
- Avoid loading a cool cargo under warm and moist conditions.
- A moisture containing warm cargo loaded into a cold container, eg a reefer, is also a problem.
- Avoid land transits during severe cold weather conditions.
- Commodities sensitive to moisture, should be stowed underdeck or in a protected stow whilst being transported by ship.
- De-vanning of containers should occur as soon as

- possible after container doors are opened
- De-vanned palletised cargo should be broken down immediately.
- Determine if container requires to be ventilated or not.
- Use of adequate moisture absorbing products or dehumidifiers.

Prior planning and preparation can go a long way to avoiding damage to cargo during shipping in a container. Knowing the characteristics of the cargo, the expected route to be taken, and discussing the shipment with your freight forwarder and an experienced marine cargo surveyor, can save a lot of frustration, heartache and expense, and see your cargo arrive safely in good condition.