

Temperature controlled cargo

Mitigating risk in the temperature-controlled supply chain

Temperature-controlled cargoes present operational challenges for all those in the global supply chain. The biopharmaceutical industry alone loses approximately USD 35 billion a year as a result of failures in temperature-controlled logistics. Such errors also contribute to the fact that a third of food produced for human consumption is lost or wasted every year.

Claims typically arise from deviations from the required temperature, which are commonly caused by inaccurate communication, operational errors and equipment breakdowns. This TT Brief outlines practical guidance for those involved in the operation, packing, unpacking or handling of temperature-controlled, 'refrigerated' or 'reefer' cargo transport units.

What are the risks?



CARGO DAMAGE



FOOD WASTAGE



EQUIPMENT DAMAGE



FINANCIAL LOSS



INCREASED INSURANCE COSTS



REPUTATIONAL DAMAGE

How can you mitigate these risks?

There are common errors that lead to the deterioration or total loss of cargo, as well as damage to the carrying equipment. These often relate to errors in documentation, ambiguous instructions or failure to follow instructions and can be mitigated with robust checking procedures. Consider the following:

COMMUNICATION

- Verify whether instructions are in degrees Celsius or Fahrenheit
- Double check whether the instructed temperature is “+” or “-” (chilled or frozen)
- Clarify any instructions you do not understand
- Avoid ambiguous instructions (temperature ranges)



PACKING

- Ensure the cargo is pre-cooled
- Ensure the reefer container or cargo transport unit is pre-cooled
- Stow below the red line
- Ensure that the air is able to flow around the cargo space (no short circuits)
- For containers, do not pack cargo beyond or block the channels at the end of the T-bar floor



PRE-TRIP INSPECTION (PTI)

Check:

- Warning/indicator lights
- Gas levels
- Leaks
- Unusually noisy compressor (crunching, banging, rattling)
- Damage to the reefer equipment
- Blockages to the internal airflow



MONITORING

- Record supply and return air temperatures to check for inconsistencies
- Notify the shipping line/cargo transport unit operator immediately if you note:
 - Temperature deviation of more than 5° F/C
 - Malfunction
 - Alarms or warning lights
- Where applicable, monitor and record readings for any humidity control, integrated controlled atmosphere or additional cargo probes



AT PLUG-IN

- Check the unit for structural damage
- Check the cable and plug for damage and report immediately
- Verify the temperature, humidity and ventilation settings against the documentation



WATCH OUT FOR RED FLAGS

- Obvious impact damage to the carrying equipment
- Obvious errors in instructions (e.g. the cargo is described as “frozen tuna” but the instructions request “+25°C/ 77°F”)
- Return air temperature readings significantly higher than supply air temperature readings
- Setpoint temperature different to instructions

