



# Temperature-Controlled Air Cargo Shipments

## Mitigating risk in the temperature-controlled supply chain




Air freight offers unmatched speed, making it ideal for sensitive cargo such as temperature-controlled goods. However, this mode presents unique operational challenges that shippers must understand to protect their cargo and mitigate risks. Once packed into a Unit Load Device (ULD), cargo is typically not actively cooled during flight. Passive solutions like dry ice, gel packs, and insulation foils help—but their effectiveness diminishes over time. Delays or cancellations can disrupt the cool chain.

TT Club data highlights modal interchange points as the highest risk areas for temperature-controlled cargo. Unlike other transport modes, air freight typically lacks active cooling during these transitions—especially problematic when connecting flights are involved.

## What are the risks?



# How can you mitigate these risks?

STAKEHOLDER	RESPONSIBILITY	LIABILITY EXPOSURE	IN THE EVENT OF A CLAIM
 <b>SHIPPER</b>	<p>Proper packaging, cargo pre-cooling, redundancy in temperature control measures, heed expert advice.</p> <p>Decide whether or not to insure the cargo.</p>	<p>High if negligent or fails to insure.</p>	<ul style="list-style-type: none"> <li>Review controls and communications</li> <li>Gather documentation</li> <li>Assess insurance coverage</li> <li>Notify relevant parties</li> <li>Act as a prudent uninsured to mitigate further loss</li> </ul>
 <b>FORWARDER</b>	<p>Expert advice, select reliable carriers, undertake due diligence.</p>	<p>Limited to negligence, capped by standard trading conditions &amp; international conventions (unless the contract with customer provides otherwise).</p> <p>*Any STC provision limiting forwarder's liability below international conventions will be null and void.</p>	<ul style="list-style-type: none"> <li>Provide advice/guidance</li> <li>Review carrier selection and communications</li> <li>Check STC's and contract provisions</li> <li>Coordinate communication</li> <li>Gather and maintain documentation</li> </ul>
 <b>CARRIER</b>	<p>Deliver cargo in received condition.</p>	<p>Limited by international conventions (unless the contract with customer provide otherwise).</p> <p>Any contract provision limiting carrier's liability below international conventions will be null and void.</p>	<ul style="list-style-type: none"> <li>Verify cargo condition</li> <li>Review procedures and compliance</li> <li>Respond cooperatively to the claim</li> <li>Maintain records</li> <li>Review contractual/ convention provisions</li> </ul>


RISK REDUCTION THROUGH PROACTIVE INVESTMENT		
Solution	Cost level	Risk level
No action	\$ Low	▲ High
Insulated packaging/blankets	\$\$ Low-medium	◆ High-medium
Dry ice/Gel packs	\$\$\$ Medium-high	▲ Medium-low
Refrigerated ULD	\$\$\$\$ High	■ Low

**PROACTIVE MEASURES**

- Pre-cool cargo before shipment
- Build contingency plans for connecting flights
- Pack cargo in line with CTU Code
- Use temperature-control solutions with redundancy
  - Install covert temperature sensors in cargo
  - Purchase comprehensive cargo insurance

**RED FLAGS**

- Routes requiring connecting flights (particularly through hot/tropical climates)
- Routes with limited scheduled services
- Lower value cargoes



**LEGAL CONSIDERATIONS**

- Liability may be limited under international conventions
- Standard trading conditions may restrict legal recourse
- Always consult your air freight forwarder before shipment