



The natural choice for thermal  
packaging

A pre-qualified  
thermal packaging  
solution, made from  
recycled feathers,  
for the Life Science  
industry.



# Our company

**Inspired by the circular economy, creating a sustainable future for temperature controlled logistics.**

PluumoPlus is an innovative thermal packaging solution developed by Aeropowder, an award-winning material and process innovation company.

We exist to ensure a better future for people and planet, and our focus is the problem of single-use plastic packaging.

**Our mission is to build a more sustainable supply chain for the healthcare and life sciences industries by replacing expanded polystyrene shippers with our unique feather-based PluumoPlus solution.**



*“Nature has already provided the systems and the materials for a sustainable existence. We exist to unlock that potential for the better of people and planet.”*

Ryan Robinson  
Founder and CEO



**The natural choice for thermal packaging**

### **Embracing the circular economy for a better future**

Created from recycled feathers from consumer products as part of a more sustainable supply chain.

### **Replacing single-use expanded polystyrene**

Fighting plastic packaging waste in life science supply chains without compromising performance.

### **Rigorously tested to the highest standards**

Validated against industry standard ISTA 7D profiles, for protection even under challenging conditions.

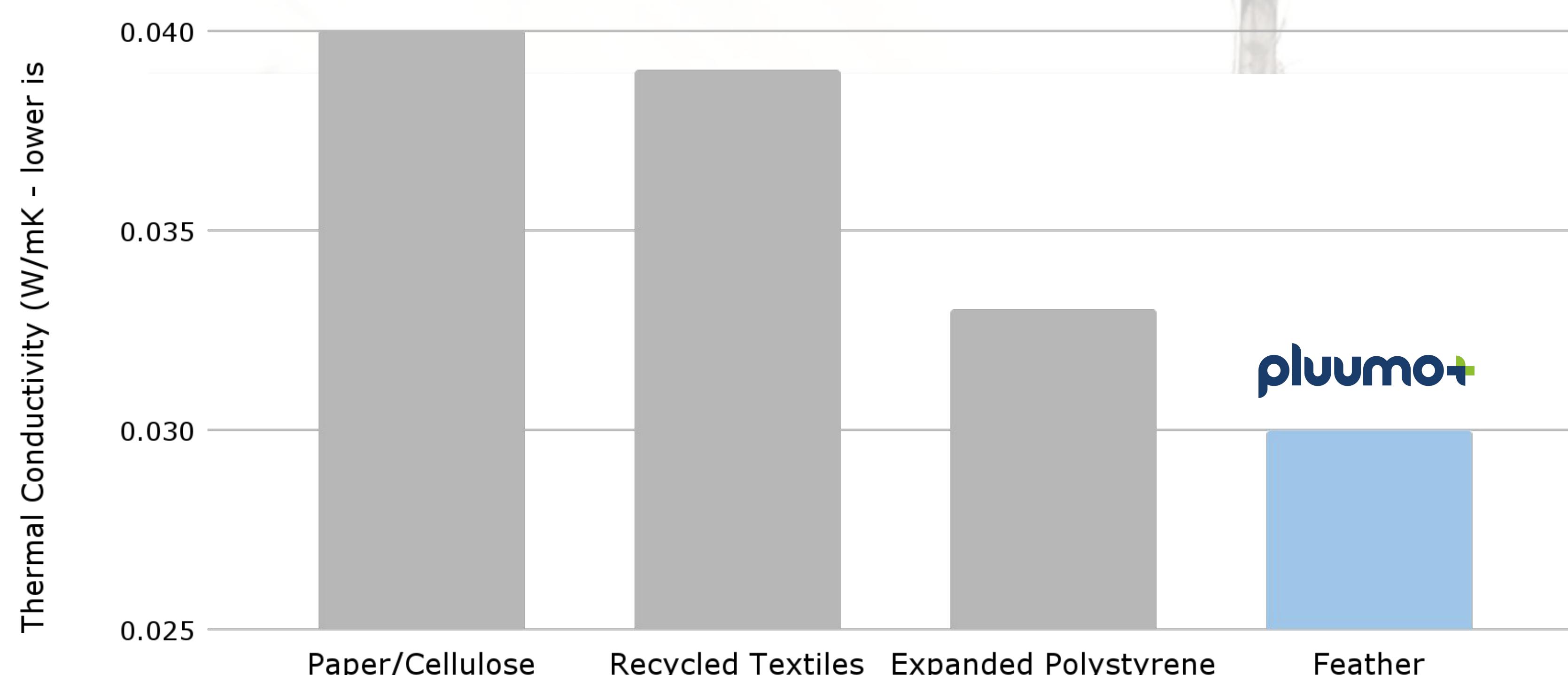
### **Flexible design and customisable solutions**

Our technology is adaptable for various payload and shipping lane requirements.

# The world's best performing thermal packaging solution made from natural materials

Refined over millions of years of evolution, nature has already provided a superior solution for thermal protection.

Feathers naturally possess very low thermal conductivity values. Our patented material is an exceptional insulator - up to 15% better than expanded polystyrene and significantly more than all other nature based solutions operating in our sector





## The recycled feather - the star of PluumoPlus

Sourced from garments and bedding at the end of their lifecycle, recycled feathers are given a new life after a full re-processing which includes washing, steam-drying and sorting according to international standards.

## Material selection and end of life

The recycled feathers are combined with a small amount of a biodegradable bonding material, which starts to break down after 2 years. The resulting insulation material is then encapsulated by a biodegradable bio-based film to produce finished PluumoPlus panels.

Then after a shipment, it doesn't have to be the end. The PluumoPlus panels are reusable and performance doesn't deteriorate when used multiple times.

## Improving your supply chain and the planet

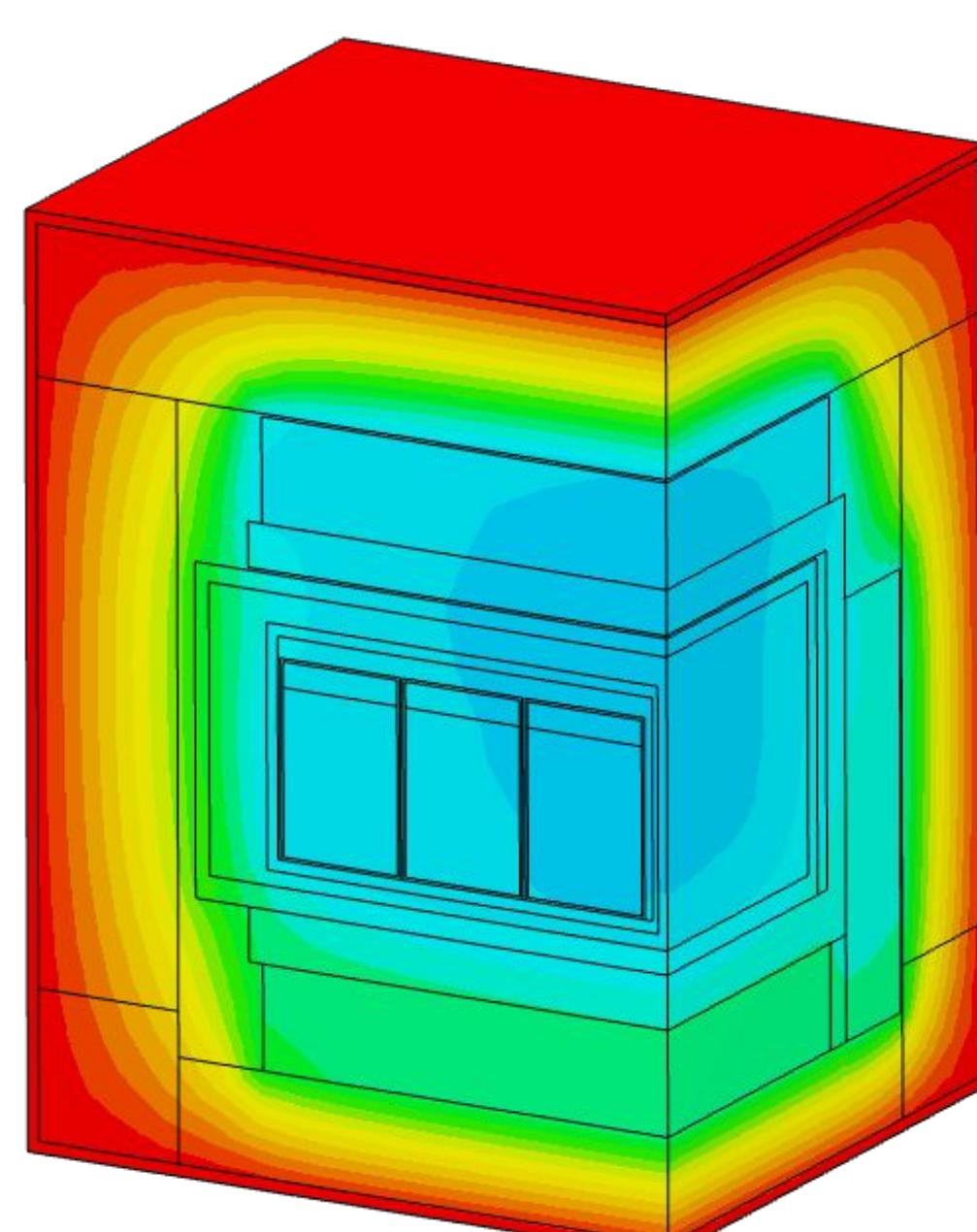
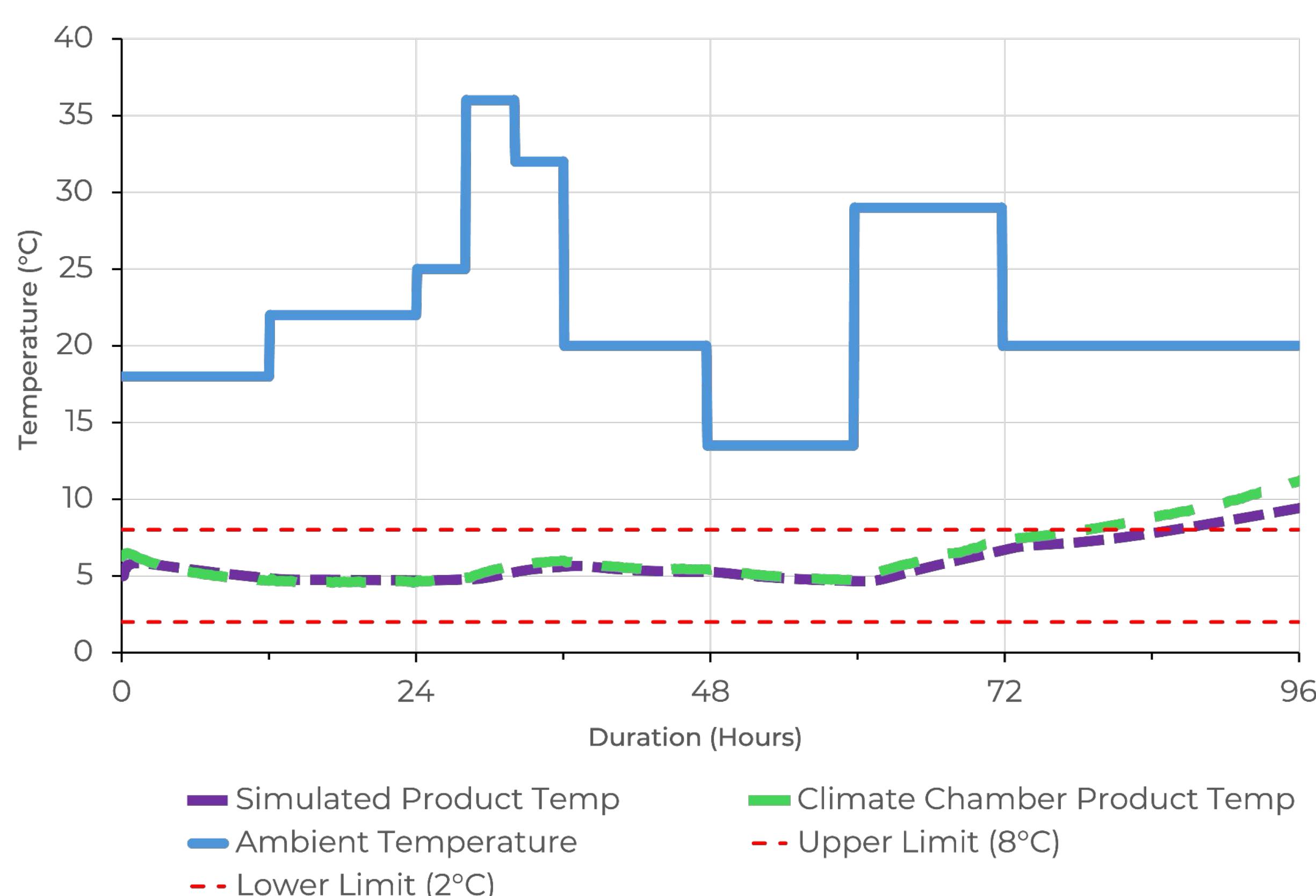
- Reduce the need to extract new raw materials from the earth
- Impact your scope 3 targets through avoided emissions
- Eliminate your single use expanded polystyrene consumption without compromising performance



# Product Development

Every PluumoPlus solution is developed using a combination of computer aided design, digital simulations and physical testing in our 1200L climatic climate chamber.

Together, we ensure that solutions can be rapidly developed and validated. Our development pipeline includes additional temperature profiles, durations, payload capacities and more.



By utilising engineering grade thermodynamic simulation software, PluumoPlus solutions can be tested against any temperature profiles by the click of a button.



# Pre-validated Solutions

Our stock solutions have been engineered to provide category defining thermal protection and all qualified against ISTA 7D profiles.

With a simple panel system, our PluumoPlus thermal packaging solutions provide superior protection whatever the application.

# Chilled Solutions (2-8°C)

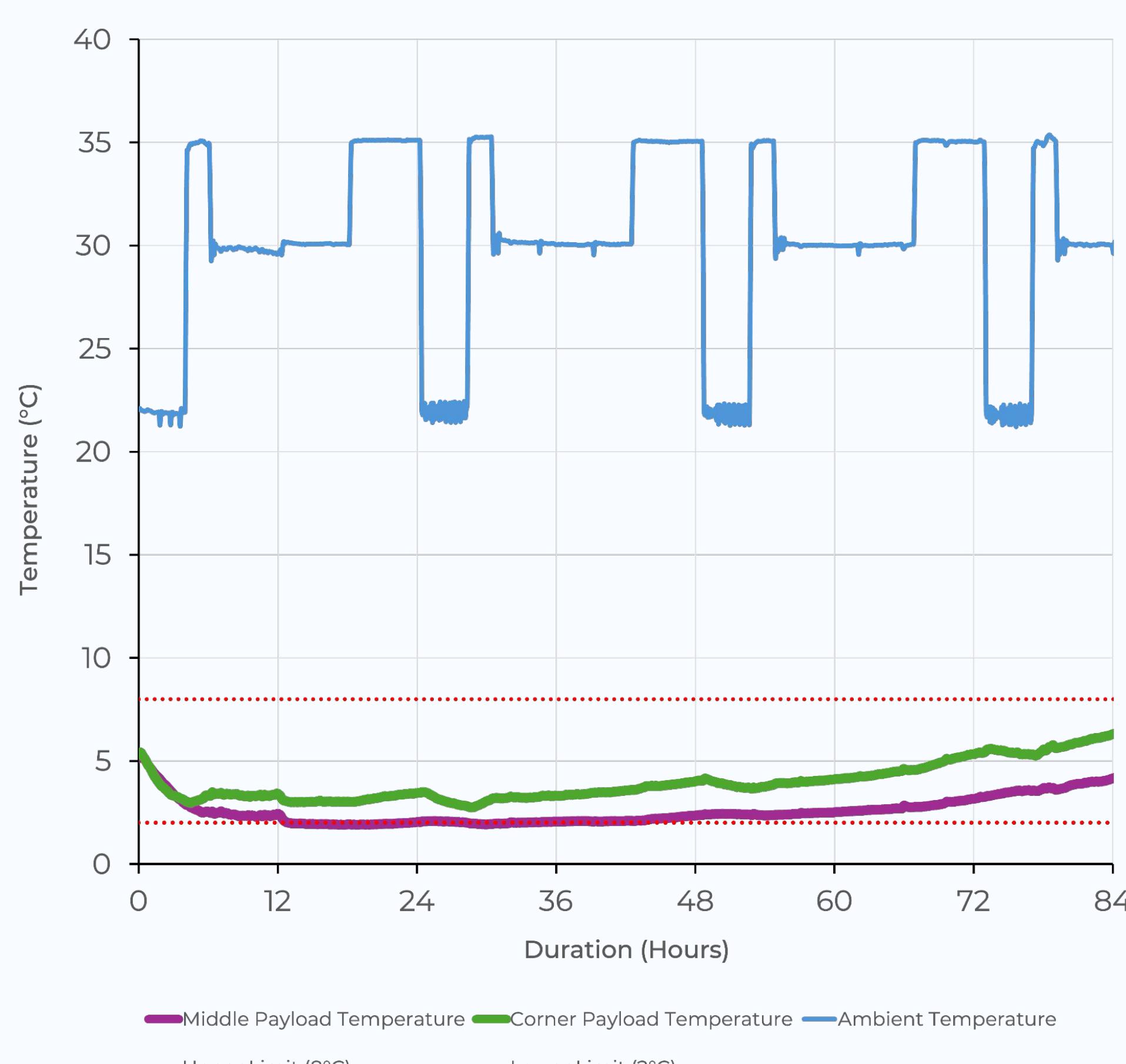
By pairing our PluumoPlus system with economical water-based gel coolants, our chilled solutions provide superior protection even under challenging ISTA 7D shipping conditions.

- Water-based gel coolants
- Flexible conditioning to accommodate various lane profiles
- Thermal wrap to mitigate cold shock

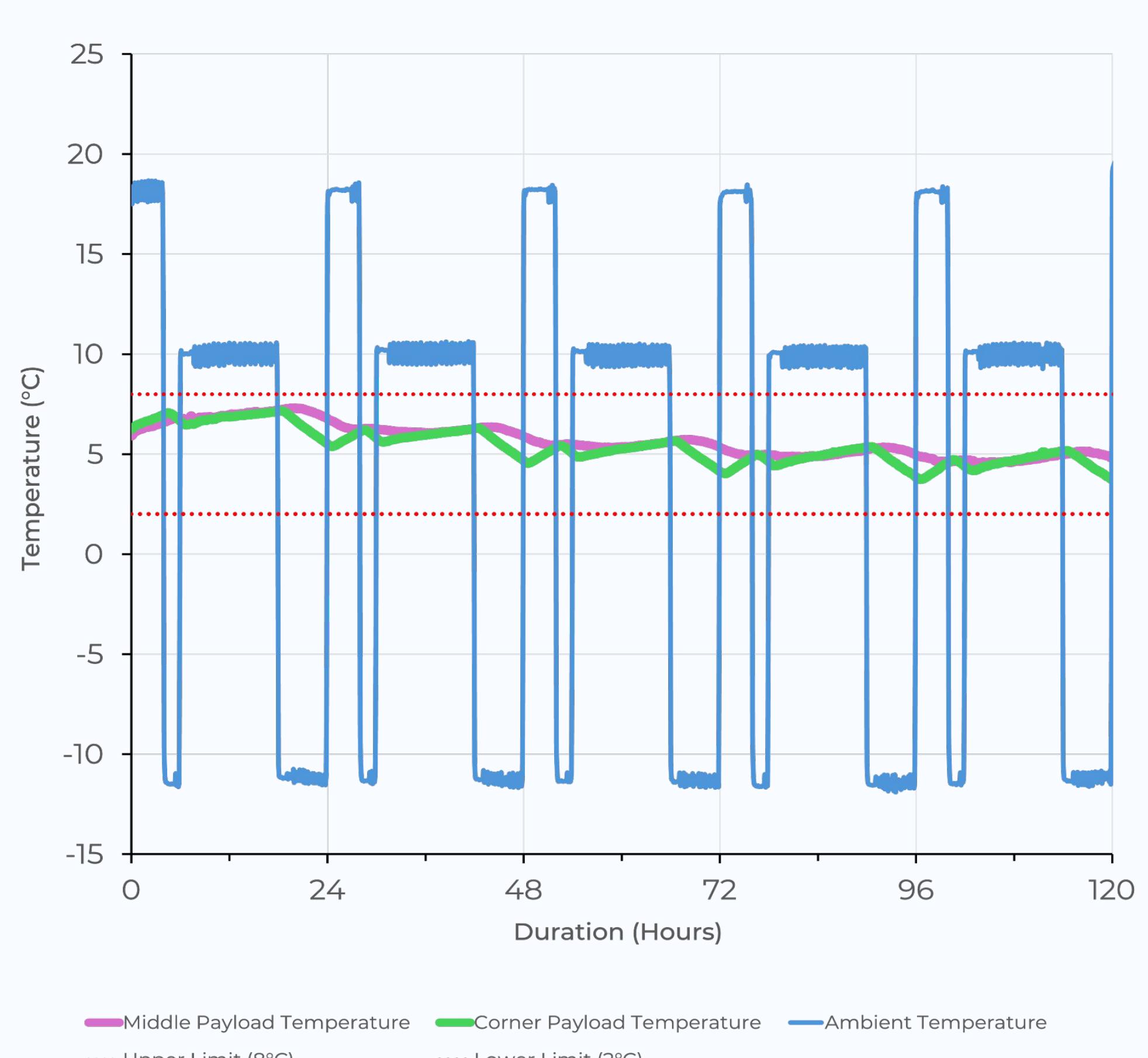


## PluumoPlus 6L 2-8°C Configuration

Product Number	Payload Volume (L)	Payload Dims L x W x H (mm)	Outer Dims L x W x H (mm)	System Weight (kg)
PP-6L	6	345 x 180 x 96	450 x 400 x 310	11.3



72+ hours  
under ISTA 7D Summer



120+ hours  
under ISTA 7D Winter

Results from independent ISTA-certified laboratory

# Frozen Temperature Solutions (<20°C)

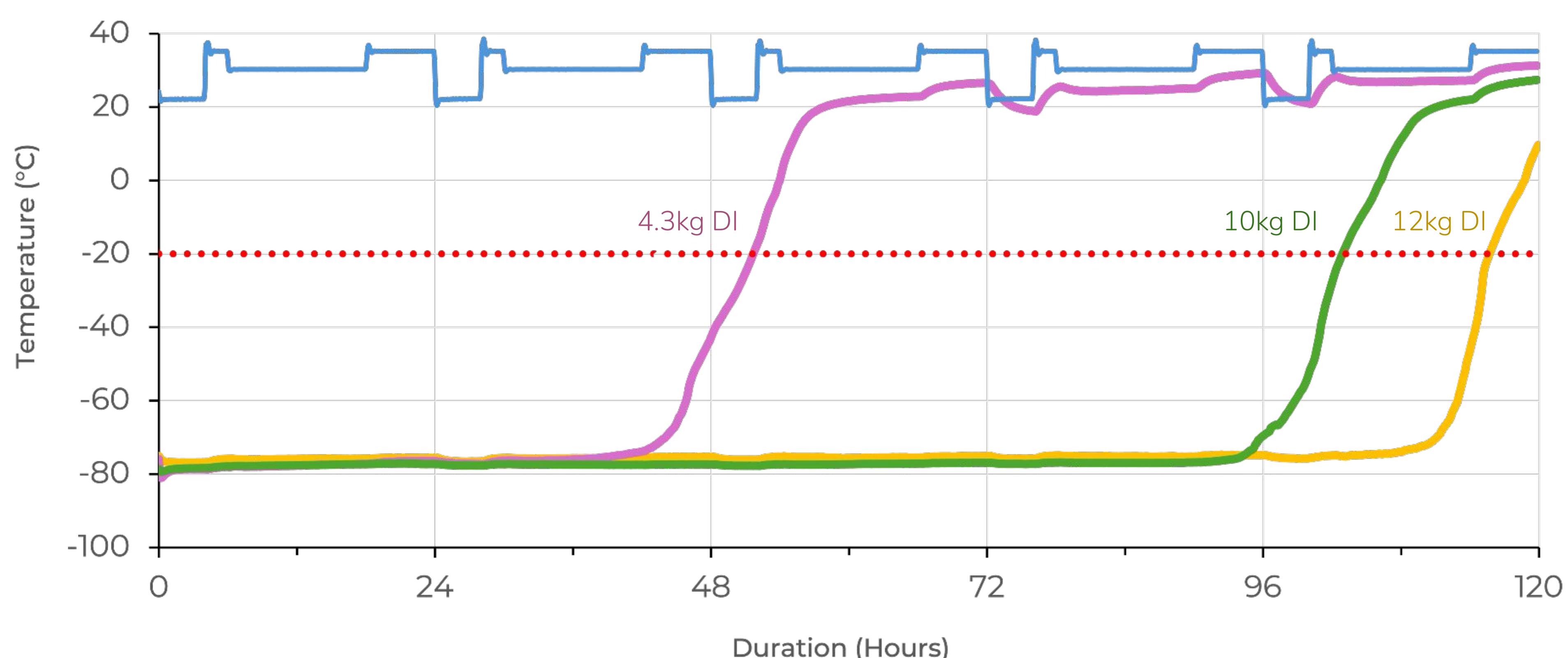


Natural protection you can rely upon at extreme temperatures. Utilising dry ice as the coolant, our frozen solutions are capable of exceptional performance to optimise available payload and weight requirements when shipping.

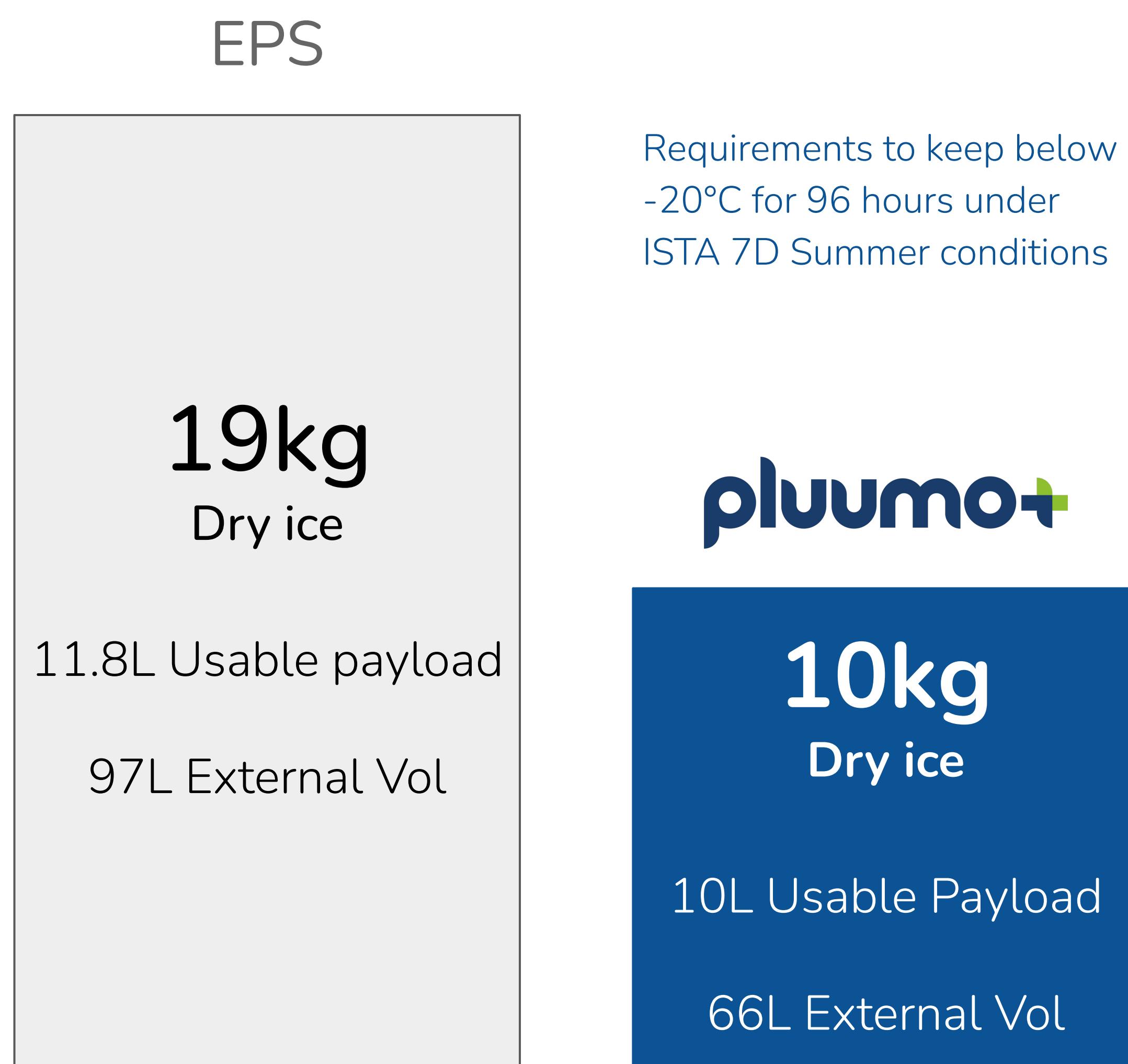
- **Best-in-class performance delivering extended protection using less dry ice than existing solutions**

## PluumoPlus DI 20 Dry Ice Configuration

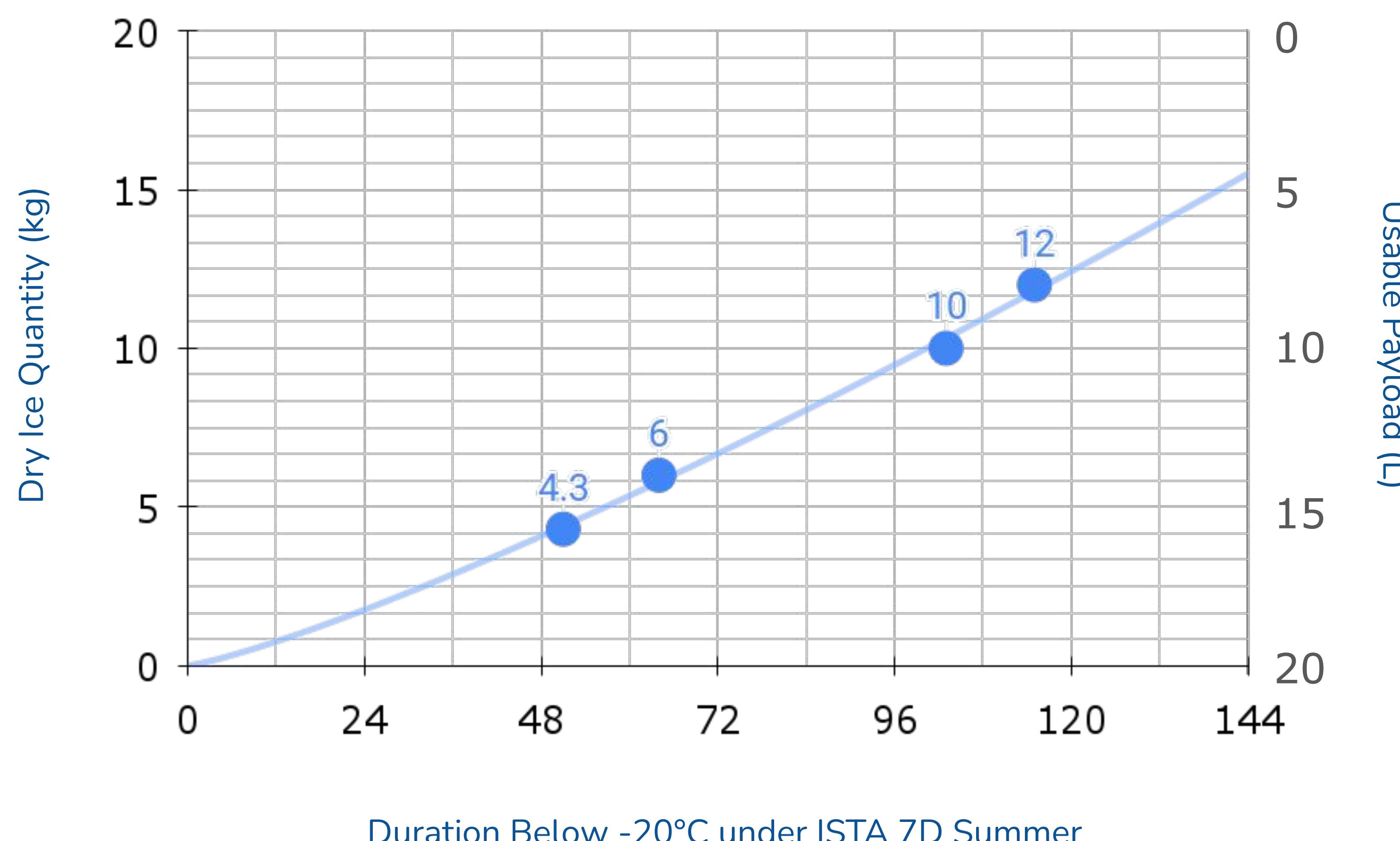
Product Name	Internal Dimensions L x W x H (mm)	Max Internal Volume	External Dimensions L x W x H (mm)	External Volume	Dry Ice Quantity	Usable Payload	Tare Weight	Duration (<20°C ISTA 7D Summer)
					4.3kg	15L	7.4kg	48+ hrs
PP-DI20	344 x 294 x 197	20L	462 x 407 x 353	66L	10kg	10L	13.1kg	96+ hrs
					12kg	8L	15.1kg	115+ hrs



## Game-changing reductions



PluumoPlus allows for significant reductions in dry ice quantities compared to expanded polystyrene solutions. Less weight translates to lower consumable and transport costs, as well as carbon impacts.



The PP-DI20 solution can provide flexibility on usable payloads and shipping durations based on your requirements, combined with its cutting edge level of performance.



The natural choice for thermal packaging



Embrace the circular economy

Replace expanded polystyrene

No compromise on performance

Get in touch to learn more

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