



Operator Briefing: Why the Arctic 10+ Meets the Polar Code's Thermal Protection Requirements Compliance and Risk-Reduction Summary for Polar Operations

1. The Polar Code Requirement: "Adequate Thermal Protection" (Chapter 8)

The Polar Code is **goal-based**, not prescriptive. Chapter 8 requires that all persons on board can survive the **actual environmental conditions** for the full Maximum Expected Time of Rescue (METR) — including sub-zero air, wind chill, wetting, spray, and prolonged exposure.

LSA immersion suit standards alone **do not satisfy** this requirement, because they are based on temperate-water, short-duration test methods that exclude the conditions experienced in real polar abandonments.

2. The Critical Risk: Passengers and Crew Are at Risk Even for Short Rescue Times

Passengers and crew in polar regions are currently at risk even when rescue is expected within 1 day (or a few days) if relying solely on standard LSA-type immersion suits.

Standard SOLAS/LSA immersion suits were designed for:



- 0–5°C water
- Short exposure windows
- No sub-zero air or wind chill
- Minimal wetting
- No requirement for prolonged functional survivability

In realistic Arctic abandonment conditions — sub-zero air (-20°C or lower), high wind chill (effective -30°C or colder), water ingress from waves and spray, and wet donning — standard suits lose insulation rapidly. This leads to accelerated core cooling, loss of dexterity, and impaired self-rescue capability **well before** any 5-day METR baseline is reached.

3. Independent Evidence: Arctic 10+ Maintains Performance Where Standard Suits Do Not

In independent 2022 Ergopro extreme cold-water tests (Trondheim, Norway) simulating realistic polar conditions (wet donning, 500g–2.3 kg water ingress, -20°C air, 10 m/s wind, effective wind chill -30°C):

Arctic 10+ Performance Summary

- Core temperature stability: $< 0.5^{\circ}\text{C}$ reduction over 6+ hours
- Extremity temperature protection: projected 5–6 hours longer before critical thresholds
- Dexterity maintained for signaling, gripping, eating, and self-management
- Microclimate stability via integrated Splash Tent (wind + spray barrier)
- Reflective, non-absorptive insulation that retains performance even when wet
- Buoyant “sleeping bag on a water bed” comfort, reducing energy expenditure

These capabilities directly address the environmental exposures outlined in the Polar Code.

4. Why Arctic 10+ Meets (and Enables Compliance With) the Polar Code Intent

Arctic 10+ satisfies all goal-based survival requirements:

- Thermal performance sustained for actual METR (1–5+ days)
- Protection against sub-zero air, wind chill, and evaporative cooling
- Insulation system that maintains effectiveness when wet

Standard LSA suit	Arctic 10+ suit
Designed for conditions	Tested in 0-2°C water Tested in air -10°C to $+20^{\circ}\text{C}$ Based on IMO LSA Code, MSC.81(70)
Insulation when wet	
Core temperature stability	
Dexterity after exposure Protection from wind and spray	



- Dexterity preservation, enabling signaling, hydration, and group coordination
- Integrated habitat protection (Splash Tent) that breaks wind/spray exposure
- Documented performance under realistic polar conditions, not controlled lab simulations

5. Bottom Line for Operators

If your SAR plan assumes your passengers and crew will be alive and functional when rescue arrives, your immersion suits must make that assumption realistic.

Standard LSA suits cannot reliably deliver survivability in real polar abandonment scenarios — even for rescue times as short as 1 day.

Arctic 10+ does — by design, by independent testing, and by demonstrated performance.

Recommendation: Evaluate the Arctic 10+ against your specific voyage METR and environmental profile to ensure genuine compliance with the Polar Code's intent.



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