

Battelle HeatCoat™

# ACTIVE, IN-FLIGHT ICE PROTECTION SYSTEM

Keep flying with Battelle.



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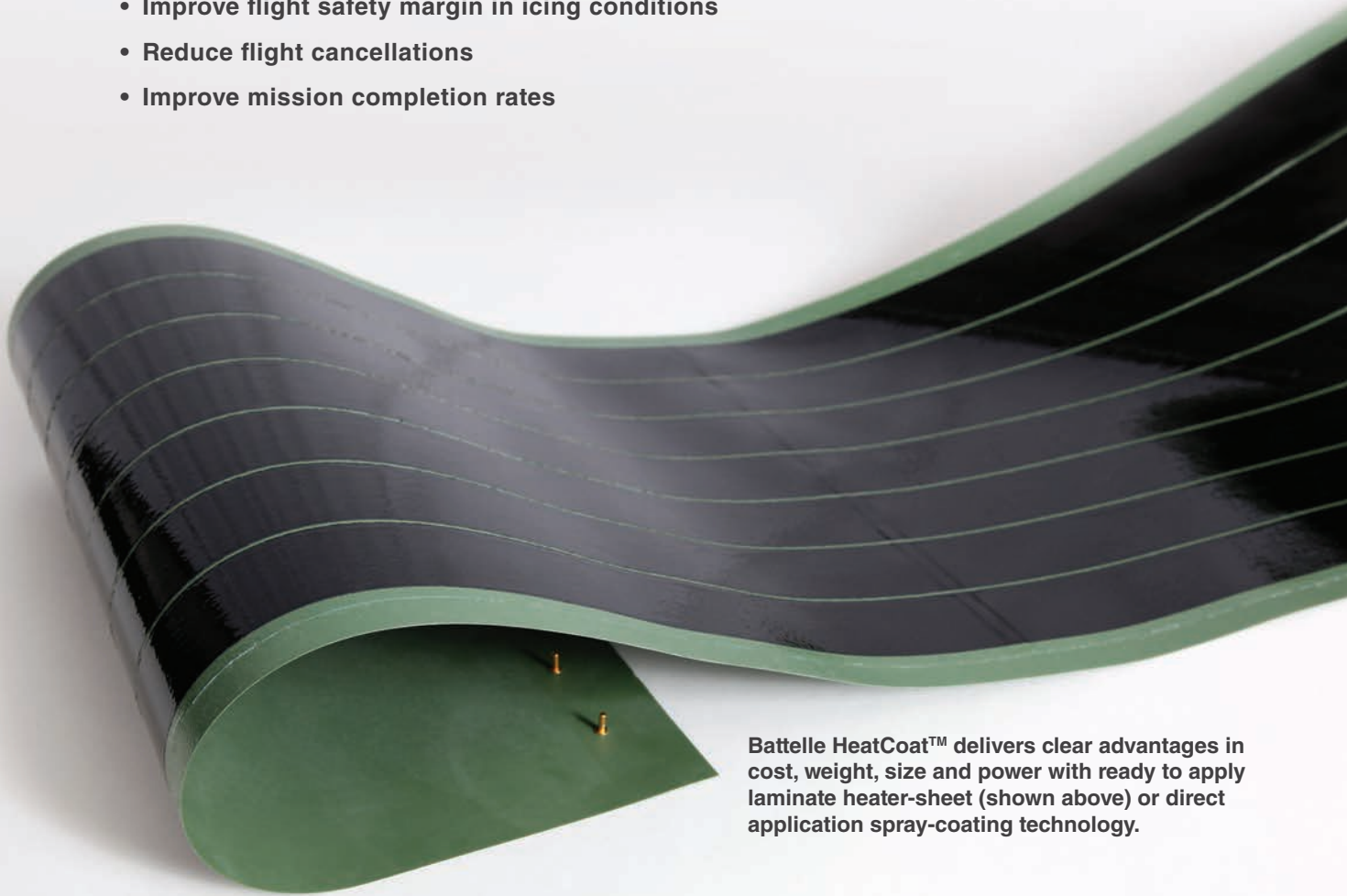
# Don't let ice keep you grounded.

Finally, an anti-icing/deicing system that maintains aerodynamic performance and can be easily retrofit to existing aircraft without expensive structural design changes!


Expand your mission envelope with Battelle HeatCoat™, a transformative new active, in-flight ice protection system.

With Battelle HeatCoat, you can take aircraft higher and farther under icing conditions than traditional anti-icing/deicing technology allows.

- **Extend mission envelope**
- **Improve flight safety margin in icing conditions**
- **Reduce flight cancellations**
- **Improve mission completion rates**



**Battelle HeatCoat™ delivers clear advantages in cost, weight, size and power with ready to apply laminate heater-sheet (shown above) or direct application spray-coating technology.**



← -- Leads

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# Thinner. Lighter. Safer.

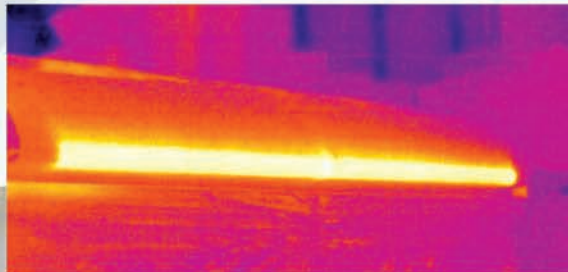
With aircraft, weight and wing profile matter. Heavy, bulky deicing systems decrease your range and impact flight performance and safety.

Battelle HeatCoat eliminates added bulk and weight with a revolutionary resistive heating coating that you can directly spray or laminate right onto your existing wings. Significant size, weight, and power advantages over alternatives means more mission payload, range and persistence.

- **Safety:** Selective autonomous operation ensures safety of unmanned aircraft
- **Mission Assurance:** Fly missions in light-to-moderate icing conditions
- **Availability:** Critical missions go as planned. Longer time-on-station. Adapts to unforecast conditions
- **Reliability:** Imbedded carbon nano-tube architecture and damage-tolerant system design assures system reliability
- **Continuous Protection:** Key advantage of unlimited operating time over systems with finite power or fluid reserves
- **Cost:** Affordable ice protection – designed to minimize cost of ownership



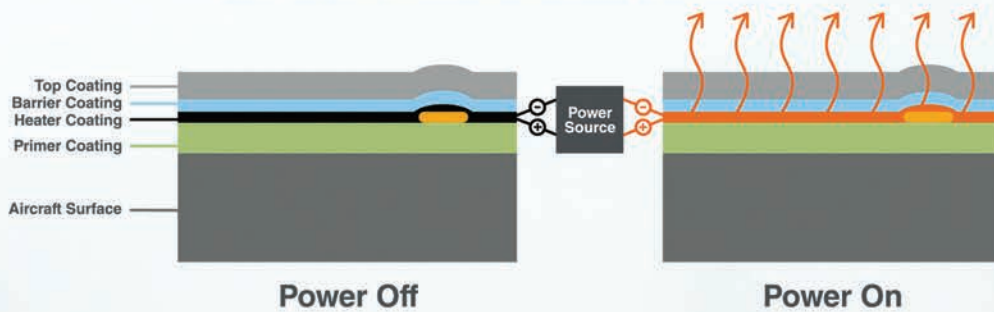
Thermal image of active Battelle HeatCoat.



Battelle's powered nano-coating prevents ice build-up on critical aerospace surfaces.



Battelle's powered nano-coating prevents ice build-up on critical aerospace surfaces.



# Active, In-Flight Ice-Protection System

This active ice protection system is based on resistive heating coating technology and provides the anti-icing/deicing solution with the smallest size, weight, and power envelope without compromising aerodynamic performance.

Battelle HeatCoat uses a proprietary, high-conductivity, carbon nanotube coating that conforms to the existing skin of the aircraft.

The system consists of the nanotube heaters, sensors, and an intelligent controller, to provide the most efficient, small, and lightweight anti-icing/deicing system for aircraft.

- Designed to FAA 14 CFR, Appendix C to Part 25
- MIL-STD 704F Aircraft Electric Power compliant
- Compatible with current aerospace coating systems
- Nanotube conformal coating – compliant smoothness/waviness for laminar flow airfoils – won't compromise flight performance
- Suitable for control surfaces and engine inlets
- Designed for field repair to reduce life-cycle costs
- Minimally invasive components make it suitable for new platform designs or retrofit of current models
- Direct spray or laminate film options allow flexible designs for all aircraft types



# Who is Battelle?

We are the world's largest independent research and development organization, operating at the forefront of scientific discovery. Our National Security team brings together world-class scientists and engineers in a broad range of specialties with a single mission: to help you solve the problems that matter most.

- **Experience:** We are a leader in technical innovation for security and defense, with decades of experience translating new discoveries into mission-ready solutions.
- **Expertise:** Our multidisciplinary teams bring together industry-leading expertise in avionics, technology insertion, advance materials, chemistry, engineering, analytics and a variety of related fields.
- **Results:** We have a proven track record helping military and commercial customers boost performance, lower costs, reduce risk and increase mission success.

## Fly with Battelle today.

Contact us for information at [solutions@battelle.org](mailto:solutions@battelle.org)

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit [www.battelle.org](http://www.battelle.org).

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It can be done