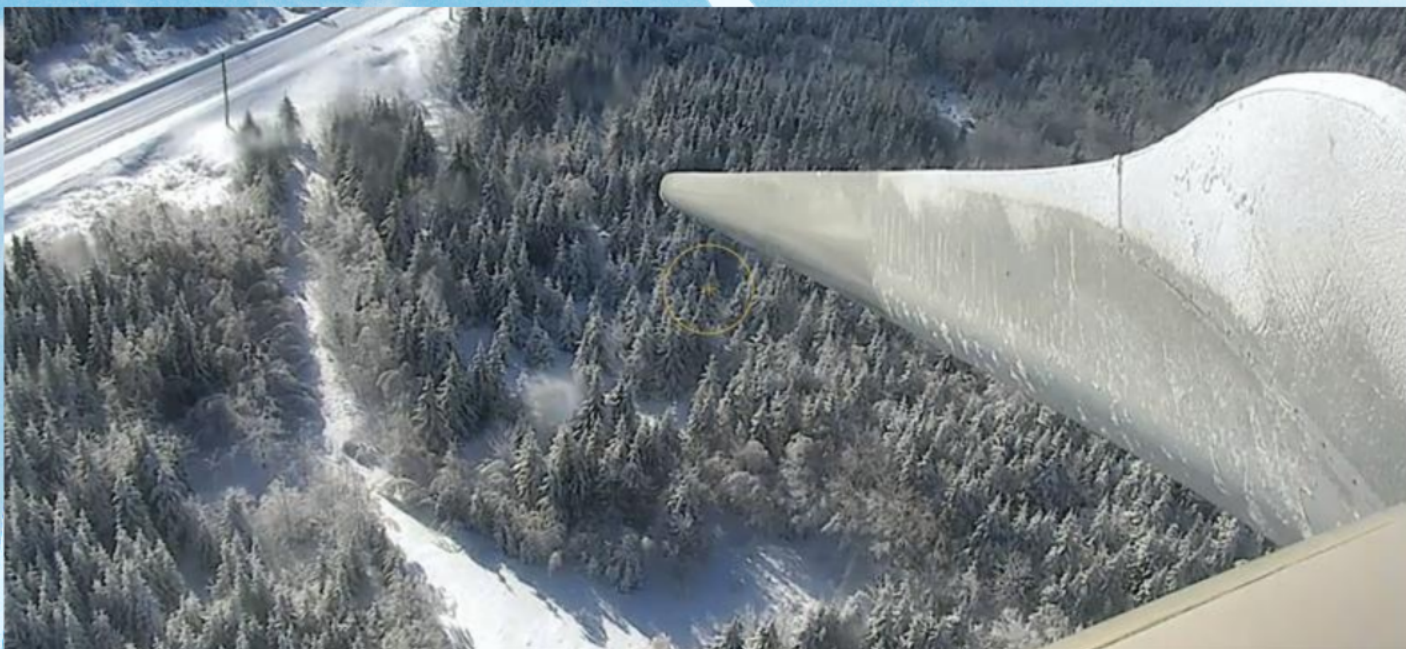




PHAZE BREAK





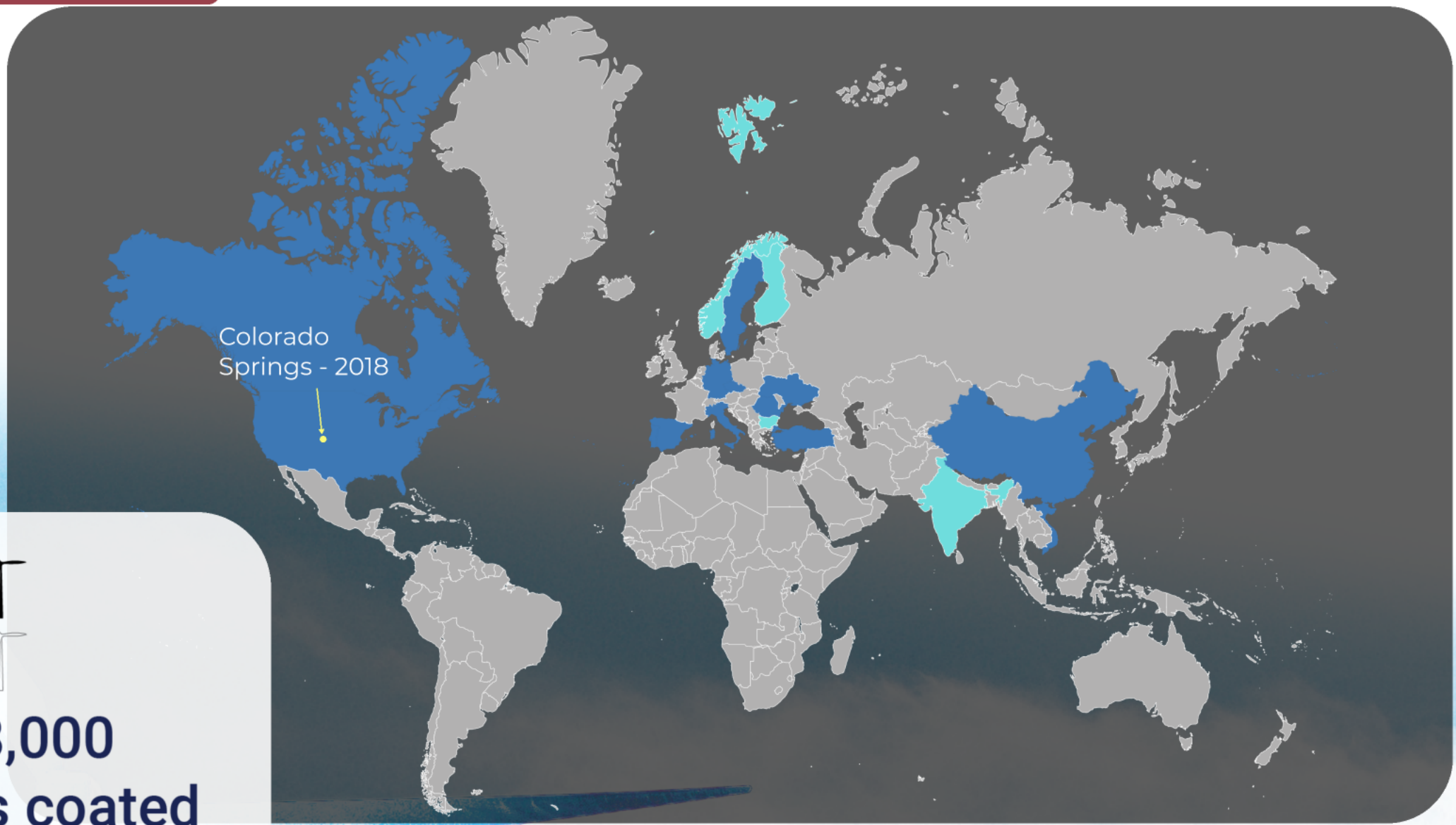
- Same turbine. Same day.
- The leading edge of the blade was coated with NEINICE ICEPHOBIC COATING. The sensors and nacelle were not.
- Changing the conversation from ICE REMOVAL to ICE MITIGATION.

This is the goal:

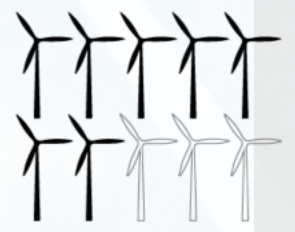
Turbines that may be surrounded by ice, but not covered in ice.



WHERE WE'VE BEEN

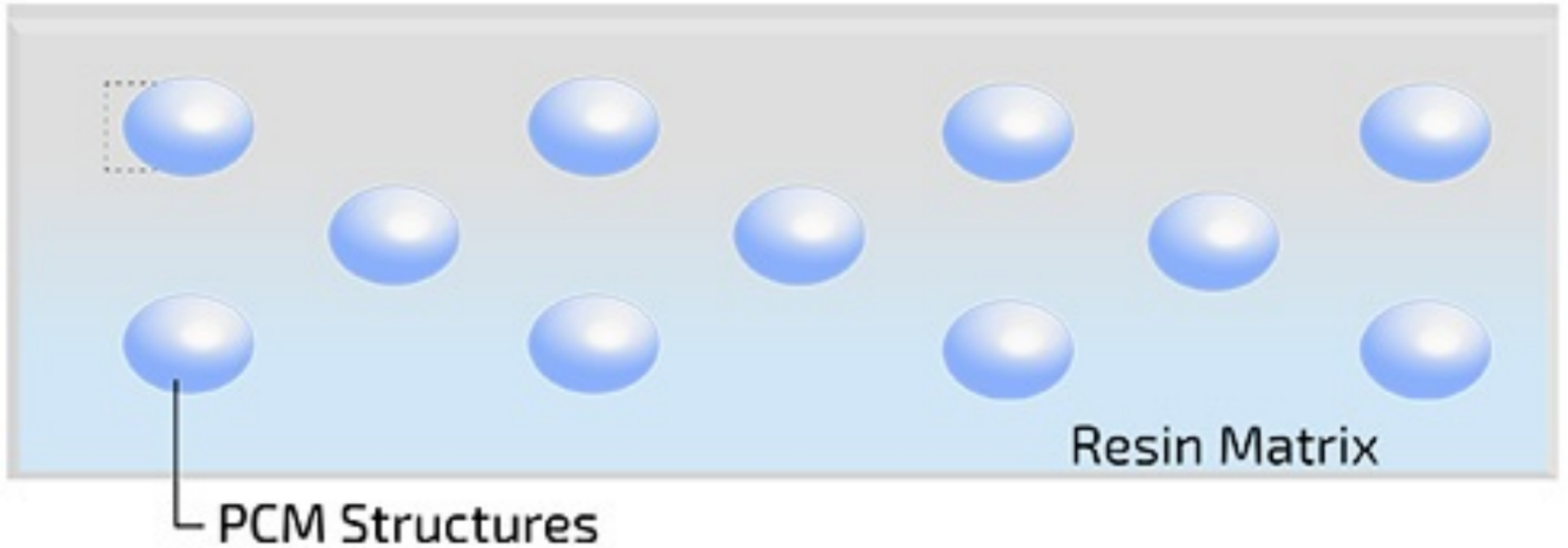


Colorado Springs - 2018



**Over 8,000
blades coated
world wide.**

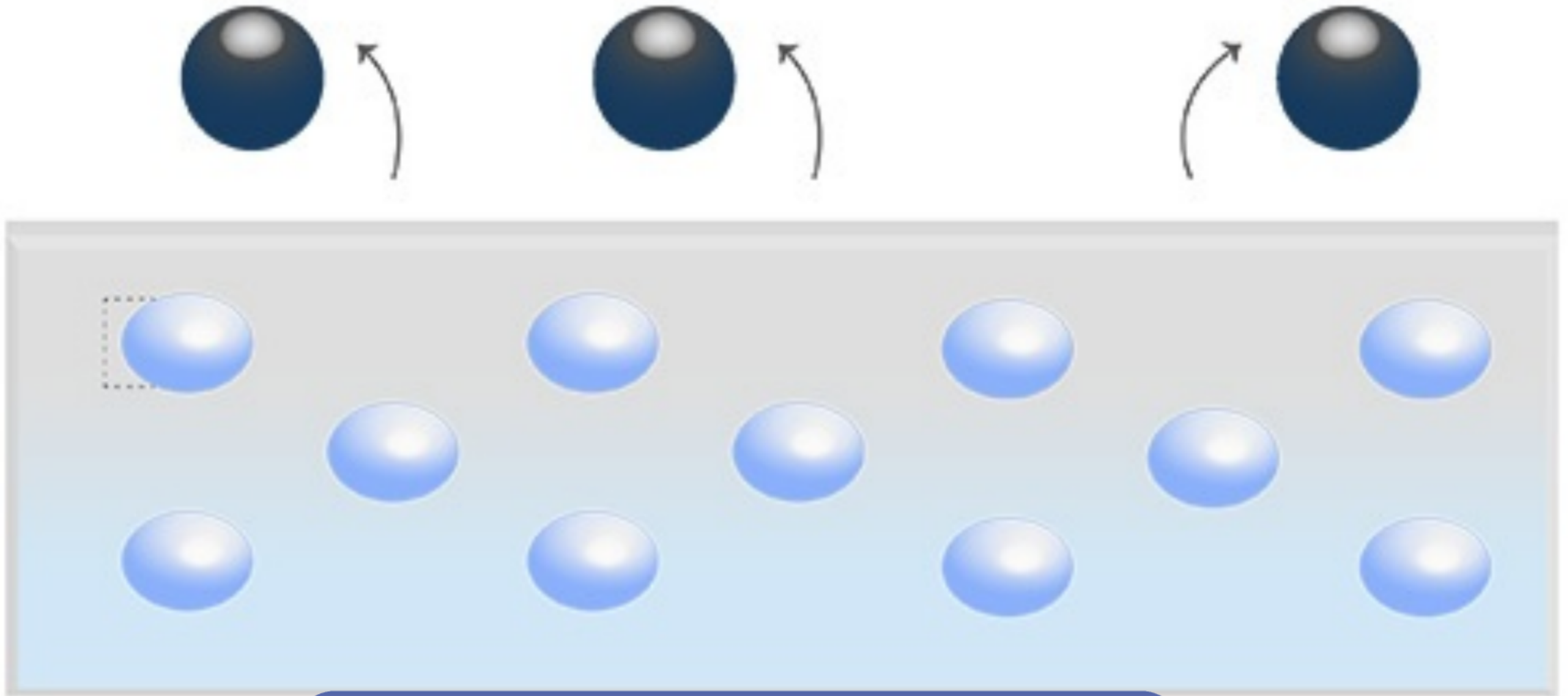
- The blue dots are Nano-Particles of Phase Change Materials (PCMs)



Moisture



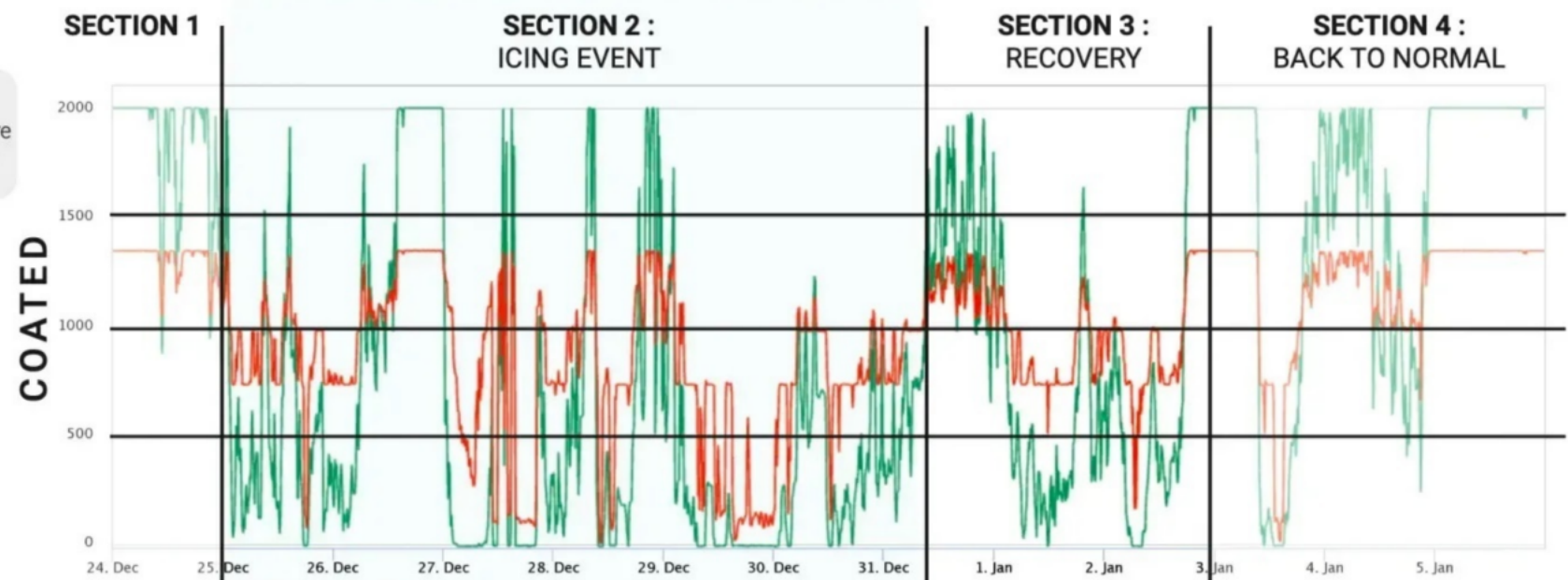
1. Ice starts to form
2. The water (the dark gray dots) release heat to PCMS as it cools
3. PCM's phaze change into a solid state
4. The water molecules are unable to anchor
5. The blade turns into a "water slide"



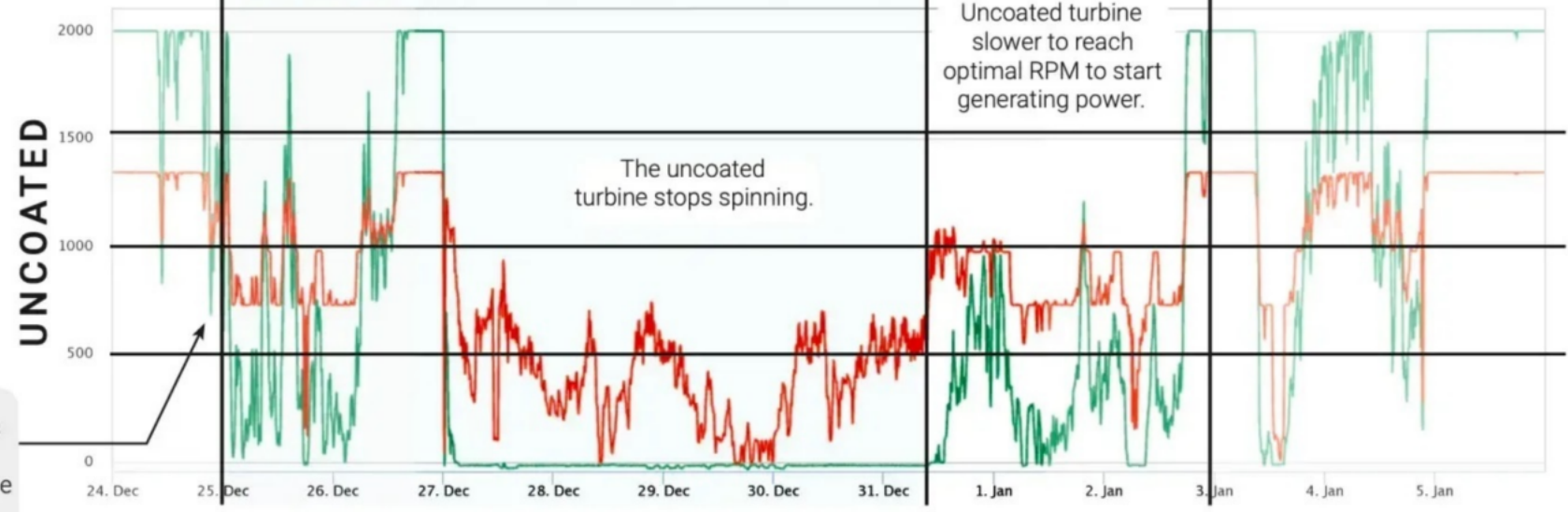
5. The coating sheds the un-anchored ice
6. PCM's begin to cool
7. Process repeats.

Grid Production Average, General RPM Average

SECTION 1
PRE-ICE EVENT
Coated and uncoated are operating at the same levels.



Starting to see the uncoated blades decrease RPM avg. when compared to the coated blades.



Grid production average, General RPM Average

— Grd RPM Avg — Grd Prod Pwr Avg



Results

EVENT DATE : February, 2022

LOCATION : Midwest USA

5 TOTAL TURBINES

144 DURATION OF EVENT (hours)

€185.00 Est. \$mW/h

0.109 AVERAGE mW/h INCREASE

15.696 Event Total mW/h INCREASE

€2,911

EVENT REVENUE INCREASE
PER TURBINE

€14,560

EVENT REVENUE INCREASE
ALL TURBINES

III. HOW DOES NEINICE RESPOND TO ELECTRICAL STORMS?

IV. HOW IS NEINICE SOLD?

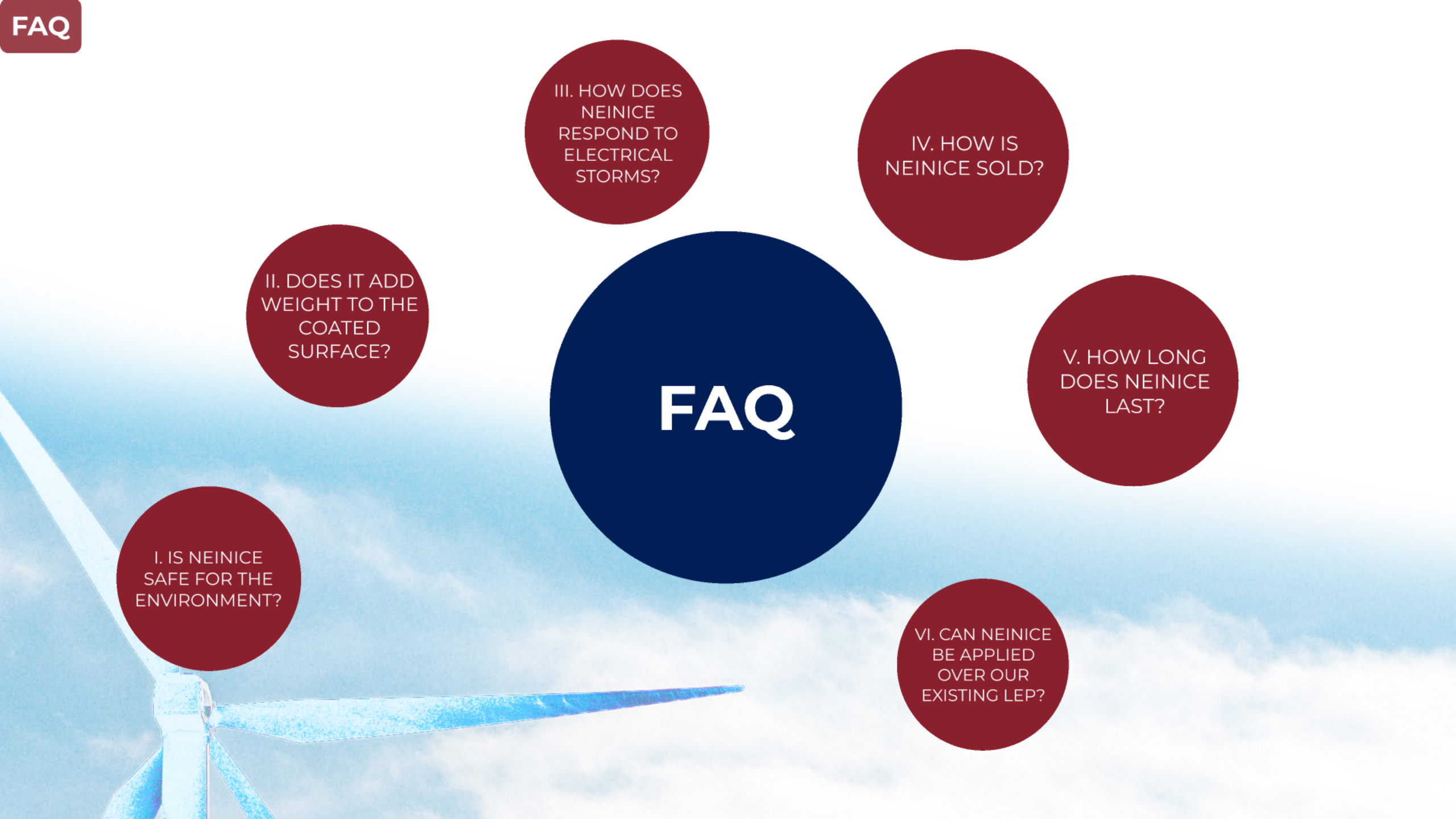
II. DOES IT ADD WEIGHT TO THE COATED SURFACE?

FAQ

V. HOW LONG DOES NEINICE LAST?

I. IS NEINICE SAFE FOR THE ENVIRONMENT?

VI. CAN NEINICE BE APPLIED OVER OUR EXISTING LEP?



IS NEINICE SAFE FOR THE ENVIRONMENT?

TECHNICAL DATA SHEET

Document Code: PCM 3000HG

Revision: 18.1

9/22



Overview

NEINICE™ is a technologically advanced transparent icephobic coating. NEINICE™ utilizes ePaint's patented phase change materials (PCM) chemically tied to low surface energy polysiloxane resin technology. NEINICE™ minimizes ice accumulation and eases ice removal. NEINICE™ yields a transparent coating that may be used over most existing coating systems to provide protection from weathering and UV exposure. NEINICE™ is easy to apply and provides superior coverage as only one thin coat is required to impart icephobic properties.

Features

Hydrophobic and icephobic coating technology
Minimizes ice accumulation and eases removal.

Compatible over most existing coating systems.

Provides protection from weather and UV exposure.

Exceptional corrosion protection.

Impact resistant.

Superior coverage.

**Environmentally friendly –
98% solids, no solvents.**

More durable than silicone-based icephobic coatings.

Transparent high gloss sheen.

Easy application by traditional methods

Recommended Uses

- For all surfaces exposed to icing *
*not recommended for foot-trafficked areas
- To protect and dramatically extend service life of most existing topcoat paints

Specification Data

Coating Type:	Polysiloxane-silicone hybrid system	Tack Free Time: 8-10 hours @ 77°F (25°C), 50% RH
Packaging:	Three component product: Kit contains 1 gallon and 2 quarts	Cured to handle: 24 hours @ 77°F (25°C), 50% RH 95% hardness achieved in 48 hours
Colors:	Transparent, high gloss sheen	Film Thickness: less than 4 mils.
Product Part ID:	PCM 3000-HG	Recommended Number of Coats: 1 coat
Application:	Traditional painting techniques	Thinner: In general, not required, Isopropanol (dry) for clean-up.
Density (AVG):	1.1±0.1g/L (9.0±0.2 lb/gal)	Shelf Life: 12 months from manufacture
VOC:	<1%	Solids By Volume: 96±2 %

Safety: For precautions refer to the Safety Data Sheets for Parts A, B and C
For additional information contact Phazebreak, Inc 1-844-467-4293 (GOPHAZE)

DISCLAIMER: Any recommendations of PhazeBreak, Inc. contained herein, covering use, utilization, chemical, or physical properties and other qualities of the products sold are believed to be reliable; however, PhazeBreak, Inc. makes no warranty or representation with respect thereto. Use or application of any PhazeBreak, Inc. products are at the discretion of the Buyer without liability to or obligation whatsoever of PhazeBreak, Inc.

DOES IT ADD WEIGHT TO THE COATED SURFACE?

- NEINICE coats in a shiny, thin layer with a thickness of between 2-4 mils
- Hard surface cover
- Weight added to the system is negligible
- No effect on alignment or aerodynamics.
- Light blue tint is optional



HOW DOES NEINICE RESPOND TO ELECTRICAL STORMS?

- NEINICE is NON-CONDUCTIVE
- This image shows a blade that was struck by lightning
- The blade was impacted, but the coating remains in effect



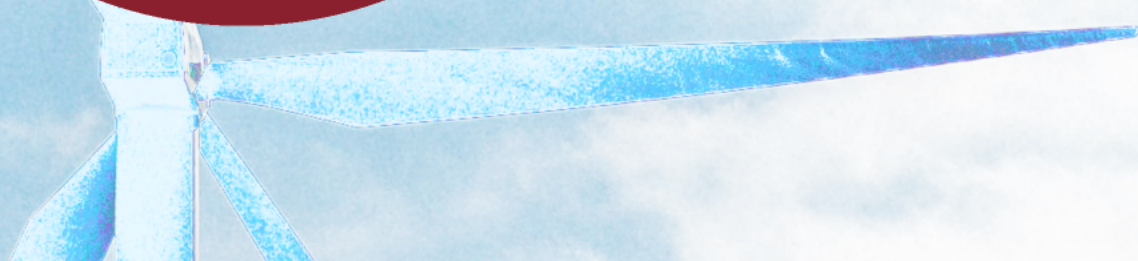
HOW IS NEINICE SOLD?

The coating comes in a 3.8 L kit. A gallon of NEINICE will cover approximately 48 sq m @ 3 mils thickness. This may vary depending on environmental conditions and the application method.



HOW LONG DOES NEINICE LAST?

- These blades were coated in 2019 in North Dakota
- Many operators prefer to have us add a slight blue tint to the coating for monitoring + maintenance
- 4 years later, the NEINICE coating is still visible and performing



**CAN NEINICE BE
APPLIED OVER
OUR EXISTING
LEP?**

- **NEINICE** can be directly applied to standard LEP topcoats

- For LEP tape or shell protection, we use a **BOND PRIMER**



APPLICATION METHODS



**PLATFORM
APPLICATIONS**



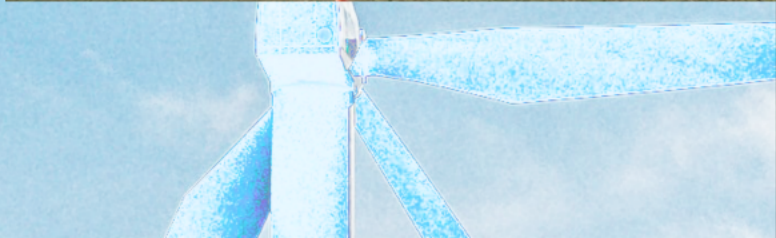
**ROBOTIC
APPLICATIONS**

PLATFORM APPLICATIONS

For uptower applications, platform crews can get to within 2-3 feet from the blades to apply NEINICE.



ROBOTIC APPLICATIONS





NEINICE

ICEPHOBIC COATING

PREMIUM MIXED BASE COATING, FOR THE REDUCTION OF ICE ADHESION ON ALUMINIUM SUBSTRATES.

CLEAR



REFER TO TECHNICAL DATA SHEET

PART A

CONTENTS
100 FL
2.96 L

Q&A