

Frequently Asked Questions

Cryotech BX36®, a bio-based, environmentally preferred runway deicer that is compatible with aircraft and airfield materials, is manufactured with a renewable resource, Susterra™. BX36 is non-persistent, readily biodegradable, meets AMS 1435 specifications as safe for runways, and has lower conductivity than commonly used liquid deicers.

Benefits

What are the benefits to using BX36?

- Testing indicates significant reductions in ASR expansion
- Reduced electrical conductivity
- Reduced catalytic oxidation of carbon brakes
- 75% biobased content (ASTM D6866)

What is ASR?

ASR is the abbreviation for a naturally occurring phenomenon called alkali-silica reaction. Commonly defined, it is the expansive deterioration of concrete due to a chemical reaction involving concrete aggregate and cement paste. ASR occurs when reactions between the aggregate and alkalis form a silica gel. The gel expands as it absorbs moisture, causing concrete to crack; usually, these cracks first appear at joints. This may happen anytime from a few months after installation to decades later, or not at all. Deicers do not cause ASR, but they may accelerate it if certain reactive aggregates are present.

How does BX36 address ASR?

Independent testing now shows that BX36 may provide protection for runway pavements from ASR. Recent testing at Clemson University resulted in lower percent expansion with BX36 when compared with traditional potassium acetate deicers. The 28-day tests were done on aggregates known to show ASR expansion after exposure to potassium acetate liquid runway deicers.

When exposed to BX36, ASR reactive aggregates expand significantly less than the 0.1% threshold target set by the FAA. For the full test report please, contact Cryotech.

How is ASR expansion tested?

As yet, there is no established criterion for measuring the ASR effect of deicer applications at airports. It is known that the ASR potential is different for each aggregate/cement mixture. So until a testing protocol is established, modified ASTM C1260 is the only tool available to evaluate deicer performance. For BX36, modified ASTM C1260 test results appear promising and suggest that BX36 will not exacerbate ASR reactions.

How does the conductivity of BX36 compare to other airport approved runway deicers?

BX36 is less conductive than potassium acetate deicers, which lessens concerns with airport lighting systems and aircraft electrical components.

What effect does BX36 have on carbon brakes?

Testing done on carbon brake material by a major brake manufacturer shows brakes exposed to BX36 exhibit lower weight loss due to catalytic oxidation than those exposed to potassium acetate. Excessive weight loss can be a sign of oxidation/corrosion that can shorten brake life. These results were based on the proposed testing protocol being developed by the Society of Automotive Engineers (SAE) A5 group.

Do AMS specifications require deicers to be compatible with carbon brakes?

No, the current revision of AMS 1435 deicing material specification does not require deicers to meet any standards for compatibility with carbon brakes. The A5 team is collaborating with the G12 working group to incorporate this testing into the AMS 1435 spec for deicing materials. This would be a universal test for measuring weight loss on brakes from all major manufacturers.

Is BX36 compatible with airframe materials?

BX36 meets the AMS 1435 specification which encompasses compatibility testing with metals, plastics, rubber, and other materials.

What is a bio-based product?

Bio-based products (other than feed or food) are wholly or partly composed of renewable agricultural crops such as corn, wheat, or sugar cane.

What are the benefits of using a bio-based product like BX36?

BX36 is made with Susterra™, a high-performance material derived from a renewable farm resource, corn. This reduces our reliance on petroleum-based materials, requires less energy to manufacture than petroleum-based glycol products, reduces greenhouse gas emissions, and supports airline, airport, and military sustainability goals.

What are the environmental impacts of BX36?

BX36 is non-persistent, readily biodegradable at low temperatures, and has a low toxicity to fish, mammals, and vegetation. The bio-based component notably reduces energy use and greenhouse gas emissions over traditional propylene glycol. BX36 is a new generation deicer that is bio-based without sacrificing performance or quality.

Frequently Asked Questions

Storage, Handling, and Application

What is the transition procedure when switching from Cryotech E36® to BX36?

When switching from E36 to BX36, we recommend emptying your tank. If that is not possible, you should drain your tank to less than 10% of E36 before adding to BX36.

Can BX36 be put in a tank with another deicing fluid?

We do not recommend mixing BX36 with competitor's fluids. Potassium acetate runway deicers produced by other suppliers can be based on different chemistry and we recommend that they not be mixed with Cryotech BX36 without consultation with Cryotech Deicing Technology. Please see Cryotech Deicing Technology Technical Bulletin "Material Compatibility and Storage of Cryotech BX36 Liquid Runway Deicer" for further information.

How should BX36 be stored?

BX36 can be stored in the same equipment as E36. For more in depth details on suggested pumps, tanks, and other information, please refer to our Technical Bulletin "Material Compatibility and Storage of Cryotech BX36 Liquid Runway Deicer."

How should BX36 be applied?

BX36 can be applied using the same application rates as E36 and in the same manner:

- Deicing:
 - 1 gallon/1000ft² (50 g/m²) near 32°F (0°C) on thin ice
 - 3 gallons/1000ft² (150 g/m²) below 10°F (-12°C) on 1 inch ice
- Anti-icing:
 - 0.5 gallons/1000ft² (25g/m²)

Can I use my existing equipment when applying BX36?

Yes, BX36 can be applied with the same equipment used to apply E36 or other acetate-based deicers. For more in depth details on suggested pumps, tanks, and other information, please refer to our Technical Bulletin "Material Compatibility and Storage of Cryotech BX36 Liquid Runway Deicer."

Performance

Does BX36 perform similar to E36?

Yes, BX36 performed as well as E36 in the SHRP testing for Ice Melting, Ice Penetration, and Ice Undercutting. This testing is performed at multiple temperature ranges. BX36 is still active at low temperatures (-20°F / -29°C). In addition, participants in the 2006-2007 winter trials noted that BX36 had equivalent performance to E36.

Has BX36 been field trialed?

Yes, BX36 was trialed successfully in the 2006-2007 winter season at three separate international airports. Based on the success of the recent trials, BX36 will now be fully available to airports for the 2007-2008 winter season.

FOR MORE INFORMATION CONTACT:

Cryotech Deicing Technology
6103 Orthoway
Fort Madison, IA 52627
Ph: +1 319.372.6012 or +1 800.346.7237
Fax: +1 319.372.2662
E-mail: deicers@cryotech.com
WWW.CRYOTECH.COM