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RE: Update on Catalytic Oxidation Testing for Cryotech BX36®, Cryotech EX180®, Cryotech XT360®, and Cryotech NAAC®

Cryotech Deicing Technology has been actively involved with aerospace industry efforts to reduce catalytic oxidation of carbon brakes caused by potassium acetate and potassium formate based deicers. The potassium in these products is known to act as a catalyst to accelerate the oxidation and subsequent breakdown of carbon in brake materials at high temperatures.

Recently, AMS 1431 and AMS 1435, the two SAE Aerospace Material Specifications that require testing of deicing and anti-icing solid and liquid runway and taxiway deicers were revised with the addition of a test method (SAE AIR5567A) to measure for catalytic carbon brake disk oxidation on a standard Honeywell coupon. Currently these specifications require that the results of SAE AIR5567A shall be reported for informational purposes only. There are no defined pass/fail criteria. The test is intended as an additional data point along with other important characteristics such as performance, environmental effect, safety, storage and handling, and price, to assist airports and airlines in the selection of suitable deicers.

Beginning in the early 2000's, catalytic oxidation of carbon brakes became an increasing concern to the industry. To address these concerns, Cryotech began research and development for the next generation, bio-based liquid runway deicers. Cryotech developed Cryotech BX36®, which contains less potassium than traditional potassium based deicers while maintaining equivalent performance. Independent testing of BX36 on brake materials manufactured by Honeywell and Messier-Bugati, included testing to the protocol SAE AIR5567A by Anti-icing Materials International Laboratory (AMIL). The results of the testing concluded that BX36 provided a significant reduction in carbon weight loss over traditional potassium based deicers.

More recently, Cryotech developed two additional bio-based liquid deicers, Cryotech EX180® and Cryotech XT360®. These products were tested by AMIL to test protocol SAE AIR5567A. Both products demonstrated a similar significant reduction in carbon weight loss over traditional potassium based deicers.

Industry testing has also determined that as a catalyst for oxidation of carbon, sodium can have less of an effect than potassium. To confirm this industry testing, Cryotech submitted Cryotech NAAC® to AMIL for testing to the SAE AIR5567A protocol. NAAC is a solid deicer made of 97% anhydrous sodium acetate and testing concluded that NAAC also provided a similar reduction in weight loss over traditional potassium based deicers.



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*SAE AIR5567A test results are available upon request.