



AEROSPACE STANDARD

AS6170™

Issued 2021-10

Superseding AIR6170A

Ice Melting Test Method for AMS1431 and AMS1435 Runway Deicing/Anti-Icing Products

RATIONALE

This SAE Aerospace Standard (AS) document is redefinition of Aerospace Information Report AIR6170A as an AS document. In addition, 3.5.3 of this SAE Aerospace Standard has been modified by the addition of information on the preparation of reference control solutions. The document also incorporates some editorial changes.

TABLE OF CONTENTS

1.	SCOPE.....	3
1.1	Minimum Requirements	3
1.2	Hazardous Materials	3
1.3	Standard Units	3
2.	APPLICABLE DOCUMENTS	3
2.1	SAE Publications.....	3
2.2	ASTM Publications.....	3
2.3	Other Reference Documents	3
3.	SUMMARY OF TEST METHOD	4
3.1	Introduction	4
3.2	Significance and Use	4
3.3	Test Equipment and Materials	4
3.3.1	Material	4
3.3.2	Polystyrene Petri Dish.....	5
3.3.3	Test Dish Accessories.....	5
3.3.4	Runway Deicing/Anti-Icing Product Distribution Equipment	5
3.3.5	Ice Preparation.....	5
3.3.6	Standard Measuring Devices.....	5
3.4	General Test Procedure.....	5
3.5	Runway Deicing/Anti-Icing Product Application Procedure	6
3.5.1	Liquid Runway Deicing/Anti-Icing Product	7
3.5.2	Solid Runway Deicing/Anti-Icing Product.....	7
3.5.3	Reference Control Solution.....	7
3.6	Temperature Regulated Test Enclosures	8
3.7	Number of Tests.....	8
3.8	Data Recording and Reporting	8
4.	NOTES	10
4.1	Revision Indicator.....	10

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2020 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AS6170

For more information on this standard, visit
<https://www.sae.org/standards/content/AS6170>

Documents

Document Sharing Hub

Figure 1 Example of ice melting test set-up 4

Figure 2 Runway deicing/anti-icing product application and brines removal 6

Figure 3 Example of ice melting test results at -10 °C (14 °F) 9

Table 1 Specifications of potassium acetate (KAC)..... 7

Table 2 Ice melting test results 9

1. SCOPE

This test method provides stakeholders (runway deicing/anti-icing product manufacturers, users, regulators, and airport authorities) with relative ice melting capacity of runway deicing/anti-icing products, by measuring the amount of ice melted as a function of time. Such runway deicing/anti-icing products are often also used on taxiways and other paved areas.

This test method does not quantitatively measure the theoretical or extended time ice melting capability of ready-to-use runway deicing/anti-icing product in liquid or solid form.

1.1 Minimum Requirements

This method sets the minimum requirements for the determination of ice melting capabilities of AMS1431 and AMS1435 runway deicing/anti-icing products in liquid and solid form as a function of time and temperature under controlled laboratory conditions.

1.2 Hazardous Materials

This test may involve the use of hazardous materials, operations, and equipment. This standard does not address the safety problems associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.3 Standard Units

The values stated in SI units are to be regarded as the standard.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS1431 Solid Runway Deicing/Anti-Icing Product

AMS1435 Liquid Runway Deicing/Anti-Icing Product

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D1193 Standard Specification for Reagent Water

ASTM D1747 Standard Test Method for Refractive Index of Viscous Materials

2.3 Other Reference Documents

Handbook of Test Methods for Evaluating Chemical Deicers, Strategic Highway Research Program, National Research Council Washington, DC 1992, SHRP-H-332