

Laboratoire international
des matériaux antigivre



Anti-icing Materials
International Laboratory

SAE G-12 RDF Subcommittee Meeting

Montréal, November 2015

Runway Deicer Performance Working Group

*Update of
AIR Performance Test Methods
for AMS1431/AMS1435
Runways and Taxiways De/Anti-icing
Chemicals*

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Runway Deicer Performance Test Methods **Included in AMS1431 and AMS1435**

Three AIR Test Methods :

-  **AIR6170 for Ice Melting**
-  **AIR6172 for Ice Undercutting**
-  **AIR6211 for Ice Penetration**

Published in 2012

Revision is planned for 2016 / 2017

Runway Deicer Performance Tests **AMS1431 and AMS1435**



Two proposed changes for next AIR revisions:

1. AIR6170, AIR6172 & AIR6211 :


To add K Acetate 25 %^w/_w a reference control solution for solids :




2. AIR6211 :

New proposed ice penetration test method

Proposed Changes-Vancouver Meeting 2015 RDP Working Group Recommendations

1. Next Revisions of AIR Test Methods (AIR6170, AIR6172 & AIR6211):

 **To add K-Acetate at 25 %^w/_w as a reference control solution for SOLIDS**

-  *Currently K-Acetate at 50 %^w/_w is tested along with Solids as a reference control solution*
-  *Commercial Solids are tested at 25 %^w/_w solution*
-  *K-Acetate at 25 %^w/_w as a reference control solution is more representative for Solids*

Vancouver Meeting 2015

RDP Working Group Recommendations

2. Next revision of AIR 6211 Test Method:

 **To develop a new ice penetration test method**

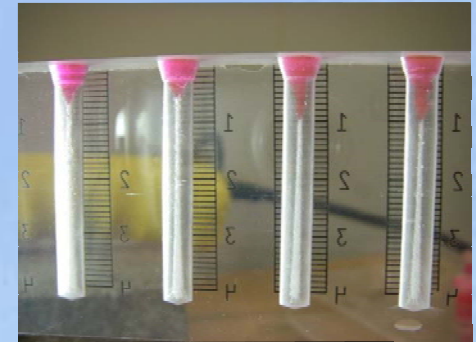
 *To initiate a new Round Robin Test for AIR6211*

 *To present an update at the 2015 G-12 Meeting in Montréal*

AIR6211 Test Method Background



Why a new Round Robin Test ?



- ✈ To add a second test temperature (-2 °C)
- ✈ Previous Round Robin Test results, using the Current Plexiglas[®] Test Support, were mostly inconsistent
- ✈ Results showed peaks formation
- ✈ Water undercooling was often observed

New Proposed AIR6211 Test Method

Ice Penetration Adhesion

New Proposed Ice Penetration Test Method - AIR6211

2015-2016 Round Robin Test Description

2015/2016 Round Robin Test Participants

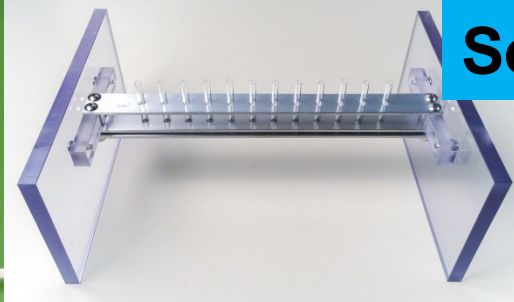
Thank you to :

- ✈ **ABAX Industries**
- ✈ **ACE/ENV Aviation Civile France**
- ✈ **ADDCON EUROPE GmbH**
- ✈ **AMIL**
- ✈ **Clariant Produkte GmbH**
- ✈ **CAAC China**
- ✈ **Nachurs Alpine Solutions**
- ✈ **Newave Aerochemical**

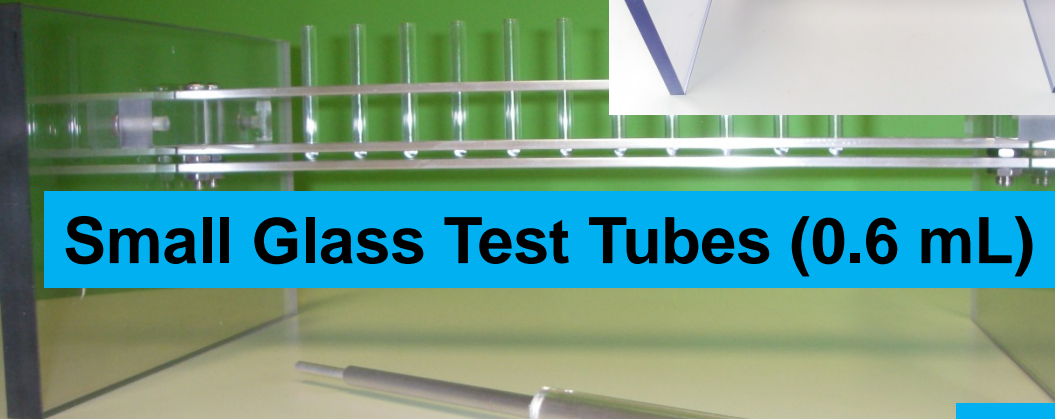
Round Robin Test Kit

Reference Control Solutions

New Test Support



Small Glass Test Tubes (0.6 mL)



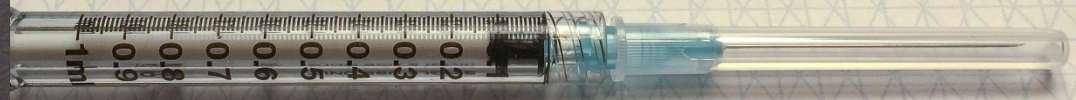
Rhodamine B, 0.1 %^w/_v (Dye)

3.5 mm OD Aluminium Rod



Micro Centrifuge Tubes

1.0 mL Syringe With Needle



2015/2016 Round Robin Test - Timeline

#	Variables	2015		2016				
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	<i>Test at -10 °C K-Acetate 50 %^w/_w</i>	RRT Planning	X	X				
2	<i>Discuss the results and the way forward (Refine the method ?)</i>			X	X			
3	<i>Test at -2 °C K-Acetate 50 %^w/_w</i>				X			
4	<i>Test at -10 °C and -2 °C K-Acetate 25 %^w/_w Discuss the results</i>				X	X		
5	<i>Data compilation/presentation AMIL to RDP Working Group</i>						X	
6	<i>RDP Working Group Recommendations May G-12 Meeting</i>							X

Conclusion

Next Update:

Next G-12 Meeting May 2016

- ✓ Presentation of Round Robin Test results
- ✓ Recommendations

Thank you for your attention

Special thanks to AMIL team:

- ❄️ **Caroline Laforte**
- ❄️ **Diane Paradis**
- ❄️ **Samuel Gaudreault**
- ❄️ **Sarah-Eve Tremblay**
- ❄️ **Frédéric Guérin**