



1. Transport Canada Publication No. TP 14448E		2. Project No.		3. Recipient's Catalogue No.	
4. Title and Subtitle Aircraft Ground Deicing Fluid Endurance Times on Composite Surfaces				5. Publication Date	
				6. Performing Organization Document No. CM1892.001	
7. Author(s) Marco Ruggi				8. Transport Canada File No.	
9. Performing Organization Name and Address APS Aviation Inc. 634 St. Jacques, 4th Floor Montreal, Quebec H3C 1C7 Canada				10. PWGSC File No.	
				11. PWGSC or Transport Canada Contract No.	
12. Sponsoring Agency Name and Address Transportation Development Centre (TDC) 800 René Lévesque Blvd. West, Suite 600 Montreal, Quebec H3B 1X9 Canada				13. Type of Publication and Period Covered Draft	
				14. Project Officer Barry Myers	
15. Supplementary Notes (Funding programs, titles of related publications, etc.) Several research reports for testing of de/anti-icing technologies were produced for previous winters on behalf of Transport Canada. These are available from the Transportation Development Centre (TDC). Nine reports (including this one) were produced as part of this winter's research program. Their subject matter is outlined in the preface. This research project has been funded by the Civil Aviation Group of Transport Canada.					
16. Abstract <p>The objective of this study was to investigate the performance of non-aluminum test plate material on fluid endurance time. To satisfy this objective, the performance was compared to the endurance time measured using standard aluminum test plates, which is the current standard for developing holdover times (HOT) used during ground deicing precipitation conditions.</p> <p>Comparative testing, during the winter of 2004-05, was conducted by APS to determine the correlation between fluid endurance measured on aluminum and non-aluminum surfaces. Testing was conducted during natural snow and simulated freezing precipitation conditions. Additional testing was conducted in natural frost conditions.</p> <p>Data from the tests performed during the winter of 2004-05 comparing the fluid endurance time measured using composite material and aluminum material test plates were analyzed. The results indicated that during snow conditions and simulated freezing precipitation conditions, the endurance time measured using the composite test plate was slightly greater than the endurance time measured using the aluminum test plate. The results also indicated that during natural frost conditions, the measured endurance time using a white painted composite test plate was shorter than the endurance time measured using the white painted aluminum test plate; this raises a concern for the current holdover times.</p> <p>It should be noted that these conclusions are preliminary given that the composite material used is Kevlar, one of multiple composite materials used in aircraft construction. The structure, material thickness, and finish need to be explored further in order to verify the validity of the test surface used to represent composite aircraft materials. It is recommended that testing be continued.</p>					
17. Key Words Deicing, Snowfall Intensity, Video, Visibility, Holdover Time, Dry-out			18. Distribution Statement Limited number of copies available from the Transportation Development Centre		
19. Security Classification (of this publication) Unclassified		20. Security Classification (of this page) Unclassified		21. Declassification (date)	22. No. of Pages xvi, 46 app
					23. Price —