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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.

16. Abstract

In recent years, research has been conducted to evaluate the variance in endurance times caused by individual variance in determination of fluid failure. In the winter of 2003-04, testing was conducted with the Intertechnique Ice Detection Evaluation System (IDES) in an attempt to determine if the technology could replace the visual determination of fluid failure.

Due to limited funding being available, only a limited number of tests (54) were conducted. Tests were conducted in natural snow and simulated freezing rain, drizzle and fog with Type I, II and IV fluids.

Based on the tests conducted, it was concluded that the IDES is currently not able to replicate a visual determination of failure. However, this may be partially a result of the IDES' inability to replicate a human observer, as opposed to being a result of its inability to detect fluid failure. The IDES consistently measured endurance times shorter than those measured by the human observer, it had difficulty detecting fluid failure with Type I fluids and it was better able to replicate visual endurance in warmer temperatures than in colder temperatures. No significant relationship was found between the IDES ability to replicate visual endurance times and precipitation type or fluid type/dilution (Type II/IV fluids only).

If the IDES manufacturer can adapt the system to better replicate the human eye, it is recommended that the system be tested again in the winter of 2004-05. If possible, a representative from the IDES manufacturer should be present during testing, especially during any simulated precipitation test session. It is also recommended that the fluid freeze point curves be checked for precision. If the system replaces the human observer, more sensors should be installed on each plate to better replicate the visual method of detecting fluid failure.

Finally, it is recommended that while this technology is being developed, more individuals receive intense training in order to bring them to the "expert" level of evaluating fluid failure. A reference fluid may be a useful tool in this training.

17. Key Words	18. Distribution Statement
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