

# New Fluid PREVENTS Railway Ice

**T**hrough a licensing agreement between NASA's Ames Research Center and Midwest Industrial Supply, Inc. (MIS), comes a new development to make railroads safer and more reliable during wintry conditions. MIS has been the leading provider of deicing and anti-icing fluids used on railway systems for more than 20 years. Through the licensing agreement, two MIS products have been enhanced with NASA's anti-icing fluid technology.

This NASA technology was designed specifically for use as an anti-icing and deicing agent. It is an effective and environ-

mentally friendly, biodegradable fluid that has proven its capabilities over a broad range of low temperatures. The fluid is also non-corrosive, and will not damage the railways when applied. It is safe to use with the electrical wiring associated with railways, because it is not conductive.

MIS offers the new fluid in two commercial products, the Zero Gravity™ Third Rail Anti-Icer/Deicer and the Ice Free Switch.® Using NASA's fluid technology, these products form a protective-coating barrier that prevents the buildup of ice and snow. Applying the fluid to the railway components prior



*Using Ice Free Switch,® enhanced with Zero Gravity,™ helps keep railways free of ice and snow.*

to ice or snowstorm works as an anti-icing fluid, remaining in place to melt precipitation as it hits the surface.

It also functions as a deicing fluid. If applied to an already frozen switch or rail, it will quickly melt the ice, free the frozen parts, and then remain in place to prevent refreezing. Additional benefits include the ability to cling to vertical rail surfaces and resist the effects of rain and wind.

Manually freeing frozen switches can take an entire crew several hours. With the Ice Free Switch, it takes only five minutes to treat the switch by spraying, brushing, or pouring on the product. Ice Free Switch requires as little as one gallon per switch whereas other deicing fluids require five to ten gallons of liquid to effectively melt ice.

Zero Gravity serves the same anti-icing/deicing purposes but applies fluid to the third rail through a system that is easily installed onto mass transit cars. A tank of fluid and a dispensing system are placed underneath the train car and the fluid is applied as the train runs its route.

The fluid leaves no build-up, does not become tacky, and will not leave excessive residue on the application site. It also works as a lubricant to keep rails and switches operating smoothly. Due to these beneficial features, the fluid can be left unattended for an extended length of time once it has been applied. This is a significant benefit to consider when treating rail components located in remote areas.

The fluid is effective in temperatures as low as  $-70^{\circ}\text{F}$ , which is an improvement over the use of heaters. Heaters have trouble functioning if temperatures are sub-zero, and they have high rates of energy-consumption. Use of the new products has resulted in fewer instances of lost power and stalled trains. Most importantly, passengers can travel safely and with fewer weather-related delays.

MIS is impressed with the results of its enhanced products for railroad operations. The company looks forward to expanding its products to solve similar problems in other industries. Many new applications will likely be found for this remarkable fluid from the space program. If recent successes are an indicator, a smooth ride moving the anti-icing technology forward is assured. ❖



*The Ice Free Switch,<sup>®</sup> enhanced with Zero Gravity<sup>™</sup> and manufactured by Midwest Industrial Supply, Inc., uses NASA-developed technology to make railways safer.*

Ice Free Switch<sup>®</sup> is a registered trademark of Midwest Industrial Supply, Inc.  
Zero Gravity<sup>™</sup> is a trademark of Midwest Industrial Supply, Inc.