



A Cargill Deicing Technology Product



Smarter snow removal: the solution is in the surface

Pavement overlay provides fewer slips and falls, more flexibility for contractors

By Anthony Hensley

It's no secret that winter maintenance offers up its own set of challenges for contractors. Unpredictable weather, pedestrian safety concerns and reactionary deicing can make snow removal a complicated, slippery mess.

Common approaches to winter maintenance such as shoveling, brooming, snowplowing and applying deicing products leave little room for a proactive approach. Even attempts to pre-treat with deicing products can easily be thwarted by Mother Nature and pedestrians.

"A common problem related to asphalt and concrete is that deicing products can easily be washed off or removed by wet conditions and foot traffic," said Scott Koefod, principal scientist with Cargill, Inc. "This loss of deicer can unfortunately result in more frequent icing problems, which could result in slips, falls and injuries."

A proactive pavement overlay product, however, can provide an effective solution. Designed and created by research scientists at Michigan Technological University's Keweenaw Research Center, the product is called SafeLane® surface overlay and is available worldwide for both contractors and municipalities through a licensing agreement with Cargill Deicing Technology.

Originally designed for vehicle traffic, the product is currently used by municipalities and has seen great success for the past 10 years. This same technology is available for contractors who are looking to provide a unique, proactive solution for creating safer pedestrian surfaces and more efficient winter maintenance.

"Utilizing a pavement overlay provides proactive opportunities and a distinct value for contractors to differentiate themselves," said Sean Riley, marketing manager for Cargill Deicing Technology. "Contractors can move past the transactional nature of their business and provide value that goes beyond traditional maintenance."

Aggregate and epoxy: Two components. One solution.

The patented technology is a single-layer pavement overlay comprised of epoxy and aggregate. When properly installed, the epoxy acts as a high-strength binder, bonding the aggregate and the pavement. The epoxy additionally acts as an impermeable seal, which provides infrastructure protection from damaging corrosion that can be caused by typical deicing chemicals.

The aggregate component of the overlay provides a high-friction surface while increasing the effectiveness of deicing products after they have been applied to the surface. This combination of traction and anti-icing capabilities help provide contractors with a proactive anti-icing surface that ultimately helps create safer conditions.



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"The product was designed to specifically make walking and driving surfaces safer by reducing snow and ice adhesion during winter weather," said Koefod. "Due to the high-friction surface, the overlay additionally helps to reduce slips and falls in wet weather year round."

Effective on virtually any foot-traffic surface where pedestrians may encounter slick conditions, the pavement overlay is commonly used on walkways, sidewalks, bike paths, crosswalks and parking lots.

"Slips and falls are some of the most common reasons for emergency room visits, and many incidents happen on level ground," Riley said. "An overlay system can greatly contribute to the prevention of these occurrences at places like medical facilities, schools, retail centers, commercial outlets, industrial sites and other locations with heavy foot traffic."

Greater safety and traction. Less ice and snow.

As a standalone surface, the texture of the aggregate is gritty enough to offer an anti-slip surface and small enough to not impede normal pedestrian traffic. When used in conjunction with deicing products, such as liquid salt brine and/or solid salt products, the aggregate has a unique ability to retain deicing products within the surface thereby prolonging the time they are effective when conditions drop below freezing to help prevent snow and ice from adhering to the surface.

"Because the deicing products are present on the pavement surface when conditions reach a certain point, the pavement overlay can help lower contractors' overall costs by providing a jump start to the snow removal process while allowing more time for contractors to service customers and react to poor conditions," Riley said.

The ease of overlay installation.

Depending on a number of variables, such as size of installation area, planning, site preparation, application location, environmental conditions, crew experience, temperature and weather, installation timelines can vary greatly. The general process, however, is relatively straightforward and involves prepping the surface, mixing, pouring and spreading the epoxy, distributing the aggregate and allowing the epoxy to cure.

"Contractors can become certified and install the pavement overlay using their own crews and labor and can arrange onsite training sessions," Koefod said. "Once the contractor and the trainers are comfortable with the process, contractors can take the reins and start the job."

Pretreatment: The key to successful anti-icing.

After installation is complete, the pavement overlay system instantly provides infrastructure protection and increased surface friction. In order for the anti-icing characteristics to become active, however, contractors must be proactive and treat the surface with deicing product.

"When deicing product is applied to the surface prior to a snow event, the overlay retains the chemicals for longer periods of time when compared to other typical pavements such as concrete and asphalt which greatly helps prevent the adhesion of snow and ice," Koefod said. "As a result, the anti-icing effect works better than if the deicing products are applied during a storm."



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An important consideration when applying deicing product to the overlay system is remembering to reapply deicer on a regular basis, depending on frequency and severity of snow and ice storms. Although the overlay does increase the deicing product's effectiveness when applied to the surface, it will eventually wear off and need to be reapplied.

"The reapplication frequency depends on many variables, such as the amount of precipitation prior to, and during a storm," said Koefod. "In extremely snowy environments it's a good rule of thumb to apply deicer on a weekly basis to ensure it will be most effective during any winter weather event."

A tough surface for tough traffic.

Just like asphalt and concrete, the pavement overlay will take a beating as a wear surface when it comes to foot traffic, strollers, wheelchairs, snow removal equipment and other non-weather-related influences. Fortunately, the surface is designed to withstand harsh conditions for an extended amount of time, depending on the health of the original surface.

"The pavement overlay is meant to last for several years, potentially 15 years or longer," Koefod said. "Aggressive plowing with excessive amounts of downforce, typically tied to large belly-mounted industrial plows, however, could shorten the product's life, but even under these conditions we still would expect a life of several years."

While commercial snow removal will naturally remain a reactionary business, products like the pavement overlay can help contractors provide a more proactive approach. Heading off dangerous pedestrian conditions before a storm by combining anti-icing methods with an anti-slip surface, contractors can make more time for servicing customers by providing smarter snow removal solutions with options like the pavement overlay.

About the author

Anthony Hensley is a technical product specialist at Cargill Deicing Technology. To learn more about the SafeLane® surface overlay product and related deicing and anti-icing solutions, contact Cargill's Deicing Technology division at www.cargilldeicing.com or call 866.900.7258.

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