



Keeping roads safe for winter

November 28, 2007

Each winter, many services are on full alert to keep us safe on the roads. But now, new de-icing technology could be on its way soon to make roads even safer.

From October to April, the Highways Agency is on full winter alert keeping equipment such as gritters, snowploughs and snow blowers on hand in to keep roads open even during extreme weather conditions. However, a new weapon may be added to the arsenal as SafeLane™ technology – used extensively in the US for the past three winters – could be deployed, as its distributor Cargill has plans to release the product in the UK.

The technology, SafeLane™ surface overlay, slowly releases a de-icing liquid onto the road surfaces. It is applied along with the existing surface grit, rock salt – be it sodium chloride, magnesium chloride (MgCl₂) or calcium chloride (CaCl₂). MgCl₂ and CaCl₂ are more commonly in use on US roads as it is more effective in the colder winters experienced by the US.

SafeLane™ is a unique anti-icing and anti-skid overlay that helps prevent frost and ice formation before it begins, while it seals roadbeds to prevent their degradation.

Anti-icing chemicals are applied to the overlay before ice or snowstorms strike. Made of epoxy resin (a bonding aggregate), SafeLane acts like a rigid sponge, storing those chemicals inside and automatically releasing them as snow and ice conditions develop.

SafeLane has de-icing, high-friction and anti-corrosion properties that have achieved considerable success in the US. Sur-

face Overlay General Manager for SafeLane Cargill in the US, Bob Persichetti, explained why their product works: "What's unique about SafeLane™ is that the aggregate used in the system actually acts as a rigid sponge and will hold the de-icing chemical. And it will not only hold it, but it will hold it for a number of winter events. So, once the Department of Transport or agency spreads the salt and chemicals on the road surface, it acts like a sponge and releases [the chemical] during subsequent freezing or snow events."

The patented combination of epoxy and aggregate that comprises SafeLane overlay is designed to last 15 years or longer. SafeLane works by melting ice, frost, snow or any freezing that can threaten the integrity of the road. David Wilson – Director of Operations at Safecote – the nominated UK marketing and distributor of SafeLane – explained further how the chemical works: "The system itself is a road surface overlay that uses an epoxy resin that adheres the aggregate to the road surface - it is a high friction skid resistant surface. The difference being that the aggregates have the ability to retain chloride.

"So when chloride (as part of rock salt) is put upon the road surface and goes into solution, when it dries the aggregate that retains chloride is then released when the road becomes damp again. It coincides with the road dropping below freezing and has the same effect as a de-icing chemical be it magnesium or calcium chloride, so in effect it self de-ices."

What's more...

SafeLane™ could slash the number of accidents that occur on the roads in the winter months each year. According to Norwich Union's research, extreme weather conditions of any kind could lead to an increase in the number of accidents on

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Keeping roads safe for winter (continued)

the roads. But many know the precariousness of driving on icy roads in winter.

Testing the effectiveness of SafeLane on road surfaces will bring “a higher degree of confidence,” explains Persichetti. “We’ve had situations where the surrounding roads are either frost or ice covered while the SafeLane surface just remains wet.”

Wilfrid Nixon, a professor of engineering at the University of Iowa who conducted a series of tests on SafeLane’s effectiveness said: “There is now two years of consistent evidence that shows improved performance by SafeLane™ overlay under winter conditions... [it] does indeed translate into safety improvements for the travelling public.”

In fact, the tests, commissioned by Cargill, found no weather-related crashes at any of the nine SafeLane overlay test sites then in place.

SafeLane also seals the roads and protects them from corrosion. Wilson explained: “Not only does it provide greater skid resistance and de-icing capability, in the US it is used as water proofing system on bridge decks to prevent chloride and moisture excess in the concrete, which is particularly pertinent in Minnesota as they recently had a bridge collapse that was attributed to due to high levels corrosion of chloride.”

The product is a result of ten years of research by a snow and ice expert at Michigan Technological University in the US. Persichetti elaborated: “It was developed there after about ten

years of research by a gentleman called Russ Alger, then Russ recognised that he needed a commercial partner and that’s when he contacted Cargill - Cargill is the North America’s largest producer of rock salt for use in winter environments so it was a natural fit for Cargill to be involved in it.”

It is business as usual for the multi-billion dollar company Cargill Ltd, who has the ability to sell over 18 million tonnes of rock salt annually.

Currently, SafeLane is going through official processes to ready the product for an international market. “As with a lot of new technology, particularly in the transportation arena,” Persichetti explained, “it has to be evaluated and tested first by various agencies. And as the test sites are installed and the feedback comes back, we’re beginning to see more and more of the Department for Transportation starting to step up and start using or adapting SafeLane technology. We’re looking to expand internationally in the UK and Russia. We have some sites that are already pending in those countries...”

Although de-icers have been used to prevent the formation of ice for years, epoxy high friction surfacing has not only been very successful in the US recently - it is the first time the chemical is used with rock salt.

Now that winter maintenance company Safecote Ltd has signed the rights to market SafeLane™ surface overlay in England, Scotland, Wales and Ireland, SafeLane may become a mainstay on roads here and worldwide.