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Wood chips replace grit and salt on icy roads



Bern has been trying out the innovative wood chips (EQ Images)

As pedestrians all over the northern hemisphere slip and slide over icy pavements this winter, an innovative Swiss manufacturer is hoping to come to their rescue.

Specially prepared wood chips, marketed under the name Stop Gliss Bio, are claimed by the maker to be both more efficient and more environmentally friendly than either the salt or the gravel traditionally used for de-icing.

The chips were pioneered two years ago in the western Swiss town of La Chaux-de-Fonds, which, at an altitude of about 1,000 metres, is known for its cold weather. Since then more and more villages and even cities have been taking an interest.

The CPAG firm which makes the chips was originally a manufacturer of industrial chemicals. But its markets crashed in 2005 and it faced closure, owner Bernard Konowal told swissinfo.ch.

It was when he was looking around for a replacement product, that the idea of Stop Gliss Bio was born.

It uses small, slim rectangles of wood, impregnated with magnesium chloride. They are cut to a specific size so that they can be spread by all European standard salt spreading machines.

Slip proof

"It's like a coin: it always falls flat," Konowal explained. "And it has a surface five or ten times greater than a piece of gravel"

"Gravel is more or less round, so when you walk on it, it rolls under your feet and you can easily slip. When you walk on the chips, if you have just ten of them beneath your feet, even if it is minus 15 or minus 20 and there is snow or ice underneath, your feet will still hold."

The trick is that the chip slowly releases the magnesium chloride trapped in its fibres, making itself a "nest" in the ice, from which it will not move. The experience of the past two years in La Chaux-de-Fonds has shown that the surface will not refreeze for five days if it does not snow again heavily.

This contrasts with salt, which melts the ice faster, but at temperatures under about minus ten will not keep the surface unfrozen for more than a few hours. So salt may have to be reapplied several times a day.

Green

While the chips are promoted as environmentally friendly in use, the raw material is also ecologically sound. "We are not going to fell beautiful forests to make these chips," said Konowal.

"We can of course use timber that's left over in saw-mills. People make furniture, for example, and there are bits of wood they don't use, which we can recycle."

"But there are some kinds of timber that are very little used here in Switzerland, like poplar. The good thing about poplar is that it retains the magnesium chloride solution much better than beech does, for example. There are not a lot of other outlets for poplar."

And at the end of the winter, the chips can be recycled into compost or used for energy production. The civil engineering department of La Chaux de Fonds conducted tests to check that they did not absorb dangerous heavy metals, and found the take-up well below permitted levels.

Capital tests

The Swiss capital, Bern, has just started preliminary tests using the chips.

"The city council asked us to try them out," Patrik Gräppi, head of the winter service of the city of Bern, told swissinfo.ch.

"They had heard of Stop Gliss Bio, and one of its sales arguments is that it is completely biological and environmentally friendly."

The city's civil engineering department has to try to balance economic and ecological demands, so assessing different materials takes time.

"Stop Gliss Bio is about six times more expensive than ordinary material. Put like that, it is much too expensive. But if it lasts six times longer, that changes things again," he said.

One problem that Bern has already run in to was that one of its salt spreading machines got blocked after only a few metres, but there is still a long way to go before the city is able to decide whether the new material is suitable for its needs.

Gräppi does not expect to come up with a proper assessment until spring, or even summer. Meanwhile, the city will continue to use grit and salt, and is also testing brine.

Taking off

The chips are only a couple of years old, but the idea is already taking off. Konowal already has about 300 communes in Switzerland as customers, and the product is gaining interest abroad as well. Tests are underway in Montreal.

In February the product will be presented as a technological novelty at the International Winter Road Congress in Quebec.

"It seems quite simple, the way I have explained it to you, but before it didn't exist," said Konowal.

As demand grows abroad, Konowal is ready to build production facilities under licence where they are needed.

He expects a plant to be set up "soon" in the Montreal area which could supply places like Toronto, New York and Washington.

Julia Slater, swissinfo.ch

GALLERIES