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DUST MANAGEMENT • CONVEYOR MAINTENANCE



CHOKING OFF THE DUST

BY
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A Manitoba company, successful internationally, is making domestic inroads with its dust-suppression and road stabilization products

> In cinematic fantasies, romance is a car kicking up a mile-long plume of dust as the protagonist escapes to somewhere. In the real world, however, road dust is a curse. When fought at all, it is with endless applications of water or products typically containing corrosive, toxic salts. Winnipeg-based Cypher Environmental is working hard to change that.

Cypher has been making and selling two products for just over a decade now that speak to these problems: DUST/BLOKR, a dust suppressant concentrate that is mixed with water and sprayed on roads with a standard water truck, and ROAD/STABILIZR, which is worked into poor-quality roads to stabilize and strengthen them, as well as to suppress dust.

Unlike commonly used products that contain, for example, magnesium chloride and calcium chloride, Cypher promotes its formulations as non-corrosive and non-toxic.

A few years ago, DUST/BLOKR caught the attention of

**Heavy trucks on a ROAD/STABILIZR re-sheeted haul road.
Photo: Dr. Hamid Mumin.**



a Winnipeg resident, Darren Van Wynsberge, who was fed up when his new truck began showing signs of corrosion, and he lost trees on his property due to magnesium chloride road dust treatments.

“I went to the City [of Winnipeg] and demanded that our street should no longer be treated with these road chemicals,” said Van Wynsberge in a Cypher press release issued last October.

The city tried it.

“It led to awareness that there were alternatives to road salts that the City should consider. Even after [one] year and a winter of snow, the results are still very good,” Van Wynsberge added.

While the City of Winnipeg declined to comment for this piece, citing its policy of not wanting to be seen as endorsing specific products, Cypher CEO Todd Burns stated that, after three years of testing, “... [the City] contacted us and said they wanted to expand the program, and they wanted to include our eco-friendly product in their annual road dust control tender.”

Applying DUST/BLOKR is straightforward: First, grade out any potholes and washboarding. Next, check the weather forecast, as the product should not be applied in the rain. Once absorbed, DUST/BLOKR provides cohesiveness of the fines on the road, so they no longer become airborne.

“It’s designed to bind to almost any type of material on the road – gravel, sand, silt, and clay. Once the product is applied and dried, it becomes very hard, so the road becomes more stable,” Burns notes.

The contained fines help bind together the gravel component to hold the road together. Once DUST/BLOKR is applied, bring on the traffic – no significant downtime is needed before vehicles can use the freshly treated road. The hardened surface sheds more water and the road will require less grading, according to Andrew Lindsay, senior vice-president of business development for Cypher.

“For longer lasting results, our customers will scarify the surface to a depth of anywhere from two to five centimetres. This will loosen the surface to allow the DUST/BLOKR to penetrate further into the road, then be re-compacted by the traffic as soon as the application is done,” Lindsay says.

Cypher has customers in 40 countries,

DUST/BLOKR is also used for erosion control. Photo: Mountain Side Earthworks.



Applying DUST/BLOKR with a water truck. Photo: Baffinland.

split roughly half and half between public roads and mining operations. Canadian mining companies using DUST/BLOKR include Teck Resources, Syncrude, Suncor, Arctic Canadian Diamond Mine, and Agnico Eagle. Baffinland Iron Mines, for which Inuit concerns about dust contamination has been an impediment to its expansion plans, has already received over two million litres of DUST/BLOKR for application on its 100-kilometre tote road between its Mary River mine and Milne Port on Baffin Island.

In a collaborative effort between Baffinland, Nunavut Sealink & Supply Inc., and Cypher, which donated 38,000 litres of DUST/BLOKR to Pond Inlet, just outside Milne Port, the hamlet, plagued by dust, treated, under Cypher supervision, about 10 kilometres of its dirt roads in 2021. Baffinland reported that the treatment could result in a more than 90-per-cent reduction in airborne dust off the roads.

In Northern Canada, where dirt roads are the norm, eight communities in Nunavut and the Northwest Territories have already, or intend to place orders for Cypher's product for their 2022 sealifts, according to Greg Peters, director of business development, BBE Expediting Ltd.

In British Columbia, Mountain Side Earthworks Ltd. has so far used DUST/BLOKR on about 12 projects: pipelines, parking lots and local private roads, including three kilometres of donated product for the Whispering Pines/Clinton Indian Band roads, located 35 kilometres north of Kamloops in 2021.

As for treating public roads, B.C.'s Ministry of Transport is proving to be a tough nut to crack. The province, says Burns, told him that, "The only things we will consider has to contain chloride," despite one of their six approved dust palliative suppliers stating specifically that its product contains no chloride salt products. This stance perplexes and vexes Burns. "What really bothers me is the lack of willingness to sway from known toxic products. They are, in effect, saying that if your product is non-toxic and non-corrosive, we won't use it."

There may be light at the end of that tunnel though: Mountain Side Earthworks president and project manager Terry Sulphur says that the BC MoT paid for a test project in 2021 on two kilometres of First Nations roads in



Compacting a ROAD/STABILIZR re-sheeted haul road with a wheel packer.
Photo: Dr. Hamid Mumin.

Salmon Arm.

"One Salmon Arm road had to apply calcium magnesium four times in one year," Sulphur says. An application of DUST/BLOKR can be good for more than a year. "The requirement [for chloride] is still something we don't understand. They are limiting us from applying the product in environmentally sensitive areas," he adds.

East of Brandon, Man., unpaved haul roads from a dozen quarries link up with the unpaved Currie's Landing Road, a main road with people living along it. Truck traffic caused washboarding and horrendous dust, in the words of Dr. Hamid Mumin, a geological engineer and professor in the Geology Department at Brandon University.

Since coming across Cypher and its other product, ROAD/STABILIZR, Dr. Mumin has developed a professional interest in researching and testing rural and haul road stabilization technologies specific to Cypher.

"Road test work and lab work, the two inform each other," he says.

Cypher designed ROAD/STABILIZR for roads with far worse issues than dust. That haul road, for example, was making no friends.

"The dust on gravel roads is tremendous. Gravel roads under heavy loads are very hard to maintain," says Dr. Mumin.

ROAD/STABILIZR is normally applied in-situ and requires clay to function; the clay binds all the other materials in the road together permanently, providing lasting stabilization, according to Burns.

Exceptionally, the Cornwallis projects

were done by mixing clay with aggregate at a quarry and transported to site, Dr. Mumin says.

"[It was] hauled to the road and laid down in a compacted layer six to eight inches thick (eight to ten inches uncompacted). Roll it with the wheel packer, then let the traffic, the heavier the better, do the rest," he says. "In our area, about 15 kilometres of road have been done. It is not brittle; it is not loose. It is a semi-solid, I'd say, with ductility. The surface is so hard that it has to be soaked even to be able to scratch up the top one or two inches, then smooth it and pack it back down."

As for upkeep, Dr. Mumin says, "We told the municipality [of Cornwallis] and contractor that there would be a one-year maintenance protocol. But they didn't bother [because the road didn't need it.] Going into our eighth season there are no signs that the road is any worse than when it was built," including no signs of potholes or frost damage – just a small amount of roughness. "ROAD/STABILIZR is a permanent binding of your aggregate and road material. Cornwallis will tell you, on one three-mile gravel haul road from quarry to highway, they are saving over \$100,000 a year, Dr. Mumin adds.

While Burns laments that the domestic take-up of DUST/BLOKR and ROAD/STABILIZR could be quicker, word is spreading. Resistance by provincial MoTs' may ultimately be futile. Using known toxins and dispatching repair crews and diesel-guzzling heavy equipment is neither environmentally nor fiscally sound. There are better alternatives.