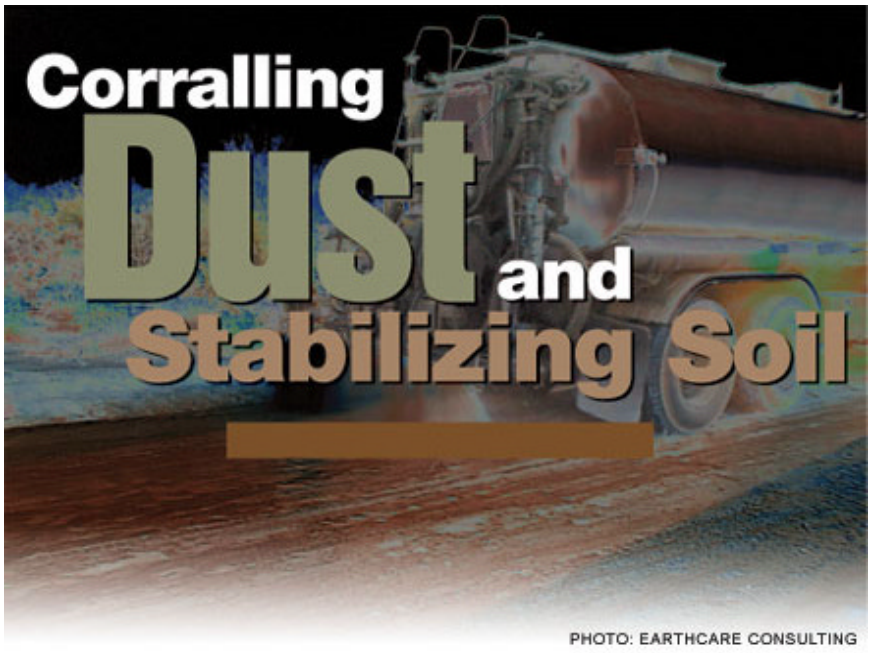
EROSION CONTROL



An army of products helps contractors solve dust and stabilization problems downtown, on rural roads, and in mine-tailings dumps.

By Joseph Lynn Tilton

When it comes to dust and erosion control on unpaved roads, many people think pavement is the answer. Unfortunately, it's a costly option–one that also brings other problems to the fore. Besides, it's generally the dust blowing up from dry lakebeds, mine-tailings dumps, and denuded off-road areas that tends to make headlines.

Suppressant products include salts, asphalt or petroleum emulsions, polymer emulsions, new synthetic materials, polymers, surfactants, bitumens, adhesives, solid materials such as fibers and mulches, hydroseeded vegetation, and even enzymes. A major challenge is to determine which materials are best suited for the particular site involved, given the environmental requirements and objectives at the site. Another challenge is to determine the best method of application.

From a Manufacturer's Perspective

Because economy and effectiveness are the two vital elements in successful soil stabilization, manufacturers continue to develop and refine new products. Bob Vitale, president of Midwest Industrial Supply Inc. of Canton, OH, develops products that focus on dust control, erosion control, and soil stabilization. He reports that his firm employs 80, five of whom are involved in research and development.

"Not only do we have a broad line of products," states Vitale, "but we also have a complete soil testing lab in Canton intimately involved in the product selection and use design for our customers. There is such a range of soil types and substrates that each situation needs to be evaluated and the correct product selection made, keeping in mind that the correct volume and use of that product depends on the soil type and objectives.

In fugitive dust control alone we have seven products representing four different technologies." These include polymer emulsion products (Soil~Sement, Soil~Sement Engineered Formula); synthetic fluid (EnviroKlean, EK35); polymer modified asphalt emulsion (RoadPro NT, RoadPro Plus); and surfactant blend (Haul Road Dust Control).

Looking at the industry as a whole, Vitale comments, "The trends in dust control requirements include increased performance, greater reliability, and a completely new level of environmental sensitivity relating to air quality, groundwater, stormwater runoff requirements, and even human health."

He adds that when it comes to dust control of a traffic-related site, "long-term" treatment generally would be something not exceeding a year. This would include not only dust control but rills formed from runoff and other forms of erosion control. "When dealing with open areas, long term might be for many years. For instance, in Washington State the Hanford Nuclear Plant site had a huge fire that denuded thousands and thousands of acres. The issue there is controlling erosion and dust until vegetation can reestablish itself." Midwest's application strategy includes development of natural bacteria, species indigenous to the open arid lands, and air dropping to help stabilize soil and minimize erosion more quickly.

"By providing erosion control at the source, we reduce sediment delivery to water sources," Vitale notes. "This is different than mechanical methods such as silt fences, hay bales, or retention ponds. The goal is for EC programs to eliminate 98% of erosion problems at the source and eliminate sediment delivery that otherwise would occur where mechanical methods typically might only be 50% effective."

When Paving Is Forbidden


PHOTO: EARTHCARE CONSULTANTS

The City of Scottsdale, AZ, has an unusual dilemma. Environmental Protection Agency and air-quality-control officials for Maricopa County have mandated that the city has to provide dust control on nonpaved roads. This prosperous community has the financial means to pave all the roads concerned–but residents adamantly oppose any paving. According to Rod Ramos, field services manager for the city, "They have horses and they want the rural character. Besides, with temperatures getting up to 115° Fahrenheit in the summer, with paved surfaces 40° hotter, pavement really creates a high heat island effect."

But residents and government officials still wanted the city to do something about the dust and to have smoother roads. "They were blading every six weeks for rutting and potholes, but still no dust control," explains Marty Koether, owner of EarthCare Consultants LLC in Tucson, AZ. "Now, with Soil~Sement applied quarterly, they have dust control, and the money saved on blading and maintenance pays for the products they're using.

This solution came about after the city arranged for a test section on a mile-long segment of road and invited contractors, including EarthCare, to put down their products on a 1/8-mi. stretch. Then, through before-and-after public meetings, citizens were able to choose the product they felt performed the best.

Ramos comments, "The native material is so much like decomposed granite that we had problems with washout during our rainy seasons in July and January. We now have our contractor treat the roads after those seasons, because water has a tendency to soften the acrylic polymer. It hardens again after a rain but can get pushed around a bit while it's still wet. We could go six months or longer without touching the treated roads but there are delaminations where the top half-inch starts to flake. If you let that go, it will pothole out. This is an ideal solution because dust never is a problem. Also, residents driving Mercedes, Jaguar, Lexus, and other luxury cars want this higher-quality surface to drive on but they don't want it paved."

Other Agencies

Koether's firm provides turnkey services, including product delivery, preparation, and application work. Their clients include the Palo Verde Nuclear Generating Station 35 mi. west of Phoenix. "We're providing erosion control and slope stabilization for dust on disturbed areas," Koether states. "The plant has an aging 20-mile water line that comes from another wastewater treatment plant to their water treatment plant. During repairs they disturb a lot of native soil, so when a repair is completed, Soil~Sement is applied to eliminate dust and enable reestablishment of vegetation."

The City of Mesa is using the product to control dust on unpaved alleys, which total some 90 mi. "We've done 10 miles of alleys so far and expect to obtain dust control for 30 miles more each year."

PHOTO: MIDWEST INDUSTRIAL SUPPLY

In Tucson, Pima County officials have discovered that soil stabilization is essential prior to chip sealing rural roads. "In the past, potholing was a problem with chip-sealed roads," Koether comments, "In this area, after just a couple of years, potholing and cracks are common. With the stabilizer in place, only light maintenance is needed. We stabilized a mile section of Twin Peaks Road in the northwest metro area in June 1997 prior to chip sealing, and that road hasn't needed any significant repairs since then."

Author Joseph Lynn Tilton is a frequent contributor to Erosion Control.

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