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Minnesota Studies Using Recycled Asphalt Shingles in Hot Mix

By Ivy Chang -- *Associated Construction Publications*, 10/24/2008

Dem-Con Recovery & Recycling, a subsidiary of Dem-Con Companies, Shakopee, MN, recently invested in a Rotochopper RG1 grinder to grind tear off asphalt shingles for use in hot-mix asphalt (HMA) plants. The plants produce asphalt that paving contractors use in building bituminous pavement roads, parking lots and driveways.

On October 21, Dem-Con held a special event with Commercial Asphalt Company to demonstrate the Rotochopper's capabilities and the process of producing this mix. Commercial Asphalt manufactures HMA in a plant about a mile away and has successfully tested ground asphalt shingles in its mixes.

Sorting and Cleaning

Dem-Con takes residential asphalt shingles that have been sorted and cleaned to remove contaminants and grinds them in the Rotochopper, which has an attached magnet to remove nails and other metals from the shingles. The ground shingles are placed in different piles according to customers' specifications and needs. Jason Haus, vice president and an owner of Dem-Con, said that the company is serious about its commitment to produce the highest quality of recycled asphalt shingles (RAS).

"Recycling the tear-off shingles will be a significant new step forward in abating the need to put shingles into landfills. Our landfill alone receives about 50,000 tons a year of roofing waste," Haus said. Based on demonstrations of recycling asphalt shingles in Minnesota and other states, Dem-Con decided to invest in the new shingle grinder and a sorting and cleaning system.

Haus stated that his company will meet any material specification required by his customers. "We have received samples of very high quality and low quality recycled shingles, and the difference is the effort put forth to insure the cleanliness of the product.

State Will Write Specifications

The Minnesota Department of Transportation is considering how to write a specification to permit use of RAS in its application on state projects. Haus said as soon as MnDOT writes the specs, Dem-Con and others in the recycling business will produce RAS on a large scale and provide the material to HMA plants.

"We have a great opportunity to reduce materials being landfilled while providing a substitute for virgin asphalt at a lower price," Haus emphasized.

Commercial Asphalt has produced and used recycled asphalt pavement, from old bituminous roads, for over 20 years and has the experience with quality control procedures to produce high quality recycled products. Bob Kuehborn, manager of quality control at Commercial Asphalt, said the technology will help conserve asphalt cement and save money.

No Difference in RAS



A Caterpillar 950G wheel loader scoops used shingles into the hopper which force feeds them into a rotor to be broken into consistent sizes.



Dem-Con acquired a Rotochopper RG1 that grinds used asphalt shingles and removes nails and other metals. The ground shingles move on a conveyor belt into a bin.

Commercial Asphalt tested the new RAS and said it noticed no difference in the mix. Large quantities of ground asphalt were placed on conveyor belts and carried into the plant and mixed with HMA.

Kuehborn believes the time is now for MnDOT to consider using asphalt shingle scrap. One recent study showed that, in Minnesota, tear-off shingles recovery could reach at least 156,000 tons per year by 2012. With an oil content of at least 20% in tear-off shingles, about 32,000 tons of virgin asphalt oil would be conserved each year by recycling asphalt shingles into HMA pavement. This would save about \$12.5 million each year of virgin oil and about 200 kilowatts of electricity for every ton of asphalt shingles that is recycled.

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