



## Fog Sealing

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Over the past few years, I've been exposed to a new term in the asphalt business—Fog Sealing. The first time I heard of the idea was from Bill Anderson, an engineer in the Pennington County Highway Department, when he made a presentation at the annual South Dakota Asphalt Conference in Pierre.

At the time, I was still managing the highway department for Charles Mix County. After listening to his presentation, I couldn't imagine going to my commissioners and asking to spend extra money to fog seal roads we had just chip sealed. I thought the idea was preposterous.

But I didn't know all the facts. At the time, I was still using cut-back asphalt, MC800-R to be exact, and I hadn't become familiar with the concept of emulsified asphalt, let alone the idea of spraying "oil" on top of the chips. Since I've become part of the SD LTAP team, I've quickly changed my way of thinking.

One of the counties in southeast South Dakota that uses fog sealing on a regular basis is Hutchinson County. John Hazen is the highway superintendent for the county, and a manager I try to visit on a regular basis through my LTAP travels. About three years ago, I was invited to a chip seal project his crew had just completed north of Menno. So with camera in hand, I drove to Menno.

I was a little skeptical, but I also anticipated a new experience. The entire road section running north out of Menno had flaggers positioned at every intersection closing the road to traffic. The oil distributor operator had his truck set at the required application rate and shortly after I arrived, away he went. He was applying CSS-1H, an emulsified oil, at an application rate of approximately .12 to .16 gallon per square yard. I couldn't believe my eyes! How in the world would the public ever put up with this? To my amazement, within 45 minutes, I was standing on the applied emulsion, and it was not tracking or picking up on my shoes. When the weather is right, it cures very quickly.

I asked John whether a person could use cut-back material for fogging and whether they used the same asphalt as when chip sealing and whether or not a person could use washed pea rock, a product a lot of counties and cities use. I soon found out that 1) this would only work with emulsified liquid asphalt, 2) that it is not the same liquid asphalt as used for chip sealing, and 3) I still haven't observed this process applied on pea rock. However, the manager for Charles Mix County is willing to try a test strip using CSS-1H and washed pea rock.



Fog seal being applied in Hutchinson County.

Over the next few years, I've been back to Hutchinson County and witnessed the process become a refined art. In chip sealing, they use Type 2-A, 3/8 minus quartzite chips applied at about 25 pounds per square yard. They broom the excess chips as soon as possible after the chip seal process. John has applied a test strip with different application rates of CSS-1H applied one side of the road versus the other side to determine the best fog seal rate. They recently applied CSS-1H on a road south of Freeman and used an application rate as high as .22 per square yard, and I can verify the road looks very good. John keeps traffic off the project for up to four hours.



Fog seal completely coats the chip sealed surface and retains stone very well.

John has documented his work and I'm sure if you ask, he will be more than happy to share the results. He commented that the normal life cycle of quartzite chips is generally six to seven years. However, for a very nominal price for fog sealing, he believes he has extended the life cycle to eight or nine years. His county commissioners are very much in favor of this process. Along with the extended life cycle, the public's perception of a "black" road, greatly improves the county's image in their eyes. Chip retention has greatly improved and when his crew is ready to apply pavement markings, the new lines are very vivid and bold. Painting of center line stripes and edge lines are done in-house using the county's paint machine.



Pavement markings show up very clearly after fog sealing.

I know by attending the annual asphalt conference and visiting with other people, a lot of other counties and towns have learned about fog sealing, and I don't mean to minimize their efforts. Using test strips and sharing the results with other entities has become an invaluable tool for other managers. I don't think fog sealing is a technique for the faint of heart, but one that many should consider. This is not a new concept but rather one that is slowly catching on, and with tight budgets, it is actually a way of "stretching the dollar."



A fog sealed chip seal virtually eliminates windshield damage to vehicles.