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# Better Roads

For The Government/Contractor Project Team

JUNE 2006

## Winter Strategies for 2006-2007

**Pre-wetted outperformed dry salt in most test cases.**

### Material choice

Some answers to the age-old question of which materials give the most effective protection were determined in a Canadian survey using data collected from a large-scale field test involving measurements on snow cover, weather and pavement conditions, and treatment operations at 10-minute intervals over 16 snow storms.

Liping Fu, Rudolph Sooklall, and Max S. Perchanok presented study results at the 2006 TRB meeting.

The data were collected at the DART field site by MTO forces, Fu, Sooklall, and Perchanok say. The test site is a 50-kilometer maintenance route on Highway 21 located in the Great Lakes-St. Lawrence area in Ontario. The

route has frequent lake-effect snowfalls and normal winter accumulation of 2.8 meters over 75 to 80 snowfall days.

Highway 21 is a Service Class 2 highway with winter average daily traffic from 2,000 to 6,000 vehicles. This requires plowing when snow reaches 20 mm and recovery of bare pavement within eight hours after a storm.

The 50-km test route was divided into eight sections, all paved with asphalt concrete.

Different chemical application protocols, varying by material type, application rate, and application method, were tested. Prewetted chemicals included near-saturation solutions of sodium chloride brine, calcium chloride brine with corrosion-inhibiting additives, and mag-

nesium chloride brine with inhibiting additives.

Results of the study showed that prewetted salt outperformed dry salt in most test cases, reducing snow cover from 17.9 to 40%.

As a prewetting agent, calcium chloride was much more effective than magnesium chloride brine, regardless of the dry salt rate or prewetting rate. Calcium chloride outperformed by 9.5 to 71.4% in terms of reduction of average snow cover. Calcium chloride brine was also more effective than salt brine.

Snow removal was not successful under high wind speeds due to blowing snow. The cumulative amount of salt and sand/salt mix applied had a positive effect on snow removal. **BR**

# For Better Roads...

Before

During

After



## the Storm

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