Salt Brine Performance
Direct Liquid Application (DLA)

Previous Research

Solid salt compared to salt brine applications *, [1]

*Note: * Salt brine DLA, salt brine and liquid blends in prewet, and shake & bake.*

Amount of salt

23.8% reduction.

Time to bare/wet

15.0% reduction.

Pavement friction

8.1% higher.

Benefit-cost ratio (B/C) **1.9**

Resources

1. *Evaluation of Winter Maintenance with Salt brine Applications in Wisconsin.* https://wisconsindot.gov/documents2/research/0092-20-53-final-report.pdf
2. *Clear Roads Project 22-04.* https://www.clearroads.org/project/22-04/
3. *Expanding Application Rate Guidance for Salt Brine Blends for Direct Liquid Application and Anti-icing.* https://www.clearroads.org/project/19-01/
4. *Material Application Methodologies Guidebook.* https://www.clearroads.org/project/15-01/

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Clear Roads Project 22-04

Evaluation of Direct Liquid Application (DLA) of Salt Brine versus Granular Salt as Measured through Various Performance and Safety Metrics [2]

Weather Conditions

0.5-5.0 in of snow accumulation.
15-36°F pavement temperature.

Study and Control Routes

Data collected on divided parallel routes of approximately three miles long in Jefferson and Sheboygan Counties in Wisconsin.
Study route (one direction) treated with salt brine DLA.
Control route (opposite direction) treated with solid salt.

Frequency and Application Rate

30-120 minutes cycle.
35-50 gallons per lane-mile of **salt brine** DLA on study route.
200-300 pounds per lane mile of **solid salt** on control route.
40-72% less salt with salt brine compared to solid salt.

Pavement Friction (Grip)

On plow truck and patrol vehicle, MARWIS[+] optical friction device.
[+]Mobile Advanced Road Weather Information Sensor.
Statistically **SIMILAR** friction on study and control routes.

Vehicular Speed

National Performance Management Research Data Set (NPMRDS).

Time to Bare/Wet

Time from the beginning of storm until reaching bare/wet conditions.

SIMILAR on study and control routes.