

# SIDEWALK WINTER MAINTENANCE BEST PRACTICES – BEGIN WITH BRINE

Contractors looking to begin introducing liquids (brine) are finding sidewalks, particularly main entrance areas, are a good first step beyond pretreating with solid (granular) salt. Sidewalk operations are high labor and high risk, so understanding application rates and proper procedures is essential to successfully making that transition.



**QUICK TIPS:** Calibrate application equipment and control application rates. Document material usage and labor costs for sidewalk maintenance by site and event to optimize efficiency and profit margins.

## APPLICATION RATES AND OPERATIONAL STANDARDS

Successful use of liquids is rooted in science, but it takes practice to get it right. The following is intended to be a starting point from which contractors can develop their own standards based on their operations' unique needs.

### Brine makeup and application rate decision factors

- Level of service: What are your contractual requirements and how much time do you have to meet those expectations? This will determine whether to pretreat, post-treat or both.
- Storm makeup: Timing, intensity, pavement temperature and present/anticipated moisture contribute to the timing of application and choice of liquid brine.
- Functional capacity of liquid being used: At what temperature will the product stop working and what can you add to increase performance?

Salt brine (NaCl) is considered an effective choice for anti-icing down to 15°F (pavement temperature). Suggested rates per 1,000 sq. ft. increase incrementally as the pavement temperature decreases.

Pavement Temperature	Pretreat	Post-treat
30°F	0.5 gallon	1 gallon
16°F	1.5 gallon	2 gallon

Adding a blend of up to 30% calcium or magnesium chloride is necessary for effective performance, to prevent freeze conditions and to expedite results when pavement temperatures are below 15°F. Standardized blend/rates optimize material control and usage tracking.

Pavement Temperature	Brine – Gallon per 1,000 sq. ft. Pretreat – 1.5 gal / Post-treat – 2 gal
0°F to 32°F	80/20 Salt Brine/Calcium Chloride
-25°F to 0°F	70/30 Salt Brine/Calcium Chloride

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To prevent accumulation from forming an ice bond to the pavement, pretreat the sidewalk with a Direct Liquid Application (DLA). Use brine after the storm to maintain and extend anti-iced surface conditions.

## PREPARATION

- Use pavement temperature data from the days preceding an event and air temperature trends to estimate the pavement temperature range for the event.
- Use that data to calculate the desired brine makeup and application rate.
- Store enough brine for 5 applications of service in at least two storms.
- Establish a standard application rate and calibrate all application equipment to that rate.

## PRETREAT — 1 TO 3 DAYS PRIOR TO AN EVENT

- Apply brine up to the start of an event as long as rain is not forecast. Schedule when there is minimal pedestrian traffic to limit tracking.
- Unload equipment from truck and fill the tanks.
- Check nozzles and adjust spray to ensure even coverage that does not extend off the sidewalk.
- Test the pavement temperature to reconfirm the desired application rate.
- Apply brine and let dry.



Shoveling and bare surface results are achieved easier after pretreating with liquids.



A salt brine blend can be used as a post-treatment, even at sub-zero temperatures.

## POST-TREAT — DAY OF THE STORM

- To prevent refreeze and optimize pedestrian safety, monitor sidewalks regularly, shovel and treat every 2 hours or after every 1 to 1½ inches of accumulation. Drifting snow and roof buildup falling on walks require immediate attention.
- Check surface temperature to confirm application rate. Apply immediately after clearing to remove residual snow and extend bond prevention.
- Monitor stairs, handicapped ramps, crosswalks, shaded areas and under downspouts. Use shorter cycle times or higher application rates and augment brine post-treatment with a light application of bagged material to maintain brine residual (estimated 25 pounds per 5,000 square feet) and added traction.
- Deicing with brine for bonded ice and hardpack is not recommended. This requires advanced experience, significantly higher rates and high-pressure nozzles capable of penetrating hardpack.