

Maintenance

OCTOBER 2015

**Project Title:**  
Snow and Ice Removal Strategies

**Task Number:** 2335

**Completion Date:** September 30,  
2015

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## Improved Deicing Methods for Snow and Ice Removal: Epoke Evaluation

Evaluate two Epoke sander/spreader units, a commercially available deicing sander/spreader that claims to greatly increase the efficiency of the sander/spreader operation.

### WHAT WAS THE NEED?

Effective snow and ice removal is essential for keeping the California Department of Transportation (Caltrans) roadways open and safe for the traveling public. Also, snow removal operations can be resource intensive for Caltrans. Since technologies for the broadcast of traction sand and deicing chemicals continue to improve, there is a need for periodic evaluation of new technologies that have the potential to improve safety and increase the effectiveness of Caltrans operations.

### WHAT WAS OUR GOAL?

The main goal of this research was to evaluate two Epoke sander/spreader units for their ability to improve the efficiency and effectiveness of Caltrans snow and ice removal operations.

### WHAT DID WE DO?

Caltrans Division of Research, Innovation and Systems Information (DRISI) in partnership with the Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center at UC Davis evaluated two Epoke sander/spreader units on the Kingvale/Truckee corridor of Interstate 80.

AHMCT worked with Caltrans Division of Equipment to determine the specifications and acquire the two Epoke units. The units were installed on Caltrans snowplows in January of 2014. They were installed on nearly identical trucks outfitted with front



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and right-wing plows, and were assigned to the Interstate 80 corridor operating out of the Kingvale and the Truckee East yards. Each Epoke unit has a 5.2 cubic yard hopper for solid material and a 950-gallon tank for liquid brine. AHMCT also equipped each unit with a DM&T data collection system, capable of monitoring spread rate and location. Below are some of the features advertised by Epoke:

- Capable of spreading dry or pre-wet material across up to three lanes and anti-icing brine across up to two lanes.
- Capable of directing the spread pattern left and right of the truck center line.
- Precise, consistent and smooth spread pattern that is easily adjusted to change width and direction.
- Multi-functional controller that allows for selection of material type, spread width, and spread rate.
- Integrated pre-wetting function for improving deicing material effectiveness and adhesion.

## WHAT WAS THE OUTCOME?

AHMCT was able to evaluate the Epoke for two winter snow seasons on the Kingvale/Truckee corridor of Interstate 80. During this evaluation, Caltrans snow fighters consistently commented on the consistent spread patterns of the Epoke units. This impressed them and they repeatedly suggested that, given the consistency of the spread pattern, there is a significant savings in material usage compared to the Caltrans standard V-box sander/spreader. The fully integrated dry material and brine system allows the Epoke to be effectively used in deicing operations between storms, which increases the efficiency of operations. Caltrans is convinced of the benefits of using the Epoke for sanding/spreading operations and will be looking to purchase more in future.

## WHAT IS THE BENEFIT?

The benefit of the Epoke is that it provides more consistent coverage of traction sand during snow fighting operations resulting in less material used, improved safety for both the operator and the travelling public, an integrated brining function for increased efficiency, and reduced snow fighting costs.

## LEARN MORE

The final report documenting this research is available at the link below.

<http://ahmct.ucdavis.edu/pdf/UCD-ARR-15-09-30-06.pdf>

## IMAGE



Image 1: Caltrans plow truck with Epokes installed.