Deicing Application Rate Guidelines
24' of pavement (typical two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

			Lbs/two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Salt Pre-wetted/ Pretreated With Salt Brine	Salt Pre-wetted/ Pretreated With Other Blends	Dry Salt*	Winter Sand (abrasives)
>30° ↑	Snow	Plow treat intersections only	80	70	100*	Not Recommended
	Frz. rain	Apply Chemical	80-160	70-140	100-200*	Not Recommended
30° ↓	Snow	Plow & apply chemical	80-160	70-140	100-200*	Not Recommended
	Frz. rain	Apply Chemical	150-200	130-180	180-240*	Not Recommended
25-30° ↑	Snow	Plow & apply chemical	120-160	100-140	150-200*	Not Recommended
	Frz. rain	Apply Chemical	150-200	130-180	180-240*	Not Recommended
25-30° ↓	Snow	Plow & apply chemical	120-160	100-140	150-200*	Not Recommended
	Frz. rain	Apply Chemical	160-240	140-210	200-300*	400
20-25° ↑	Snow or frz. rain	Plow & apply chemical	160-240	140-210	200-300*	400
20-25° ↓	Snow	Plow & apply chemical	200-280	175-250	250-350*	Not Recommended
	Frz. rain	Apply Chemical	240-320	210-280	300-400*	400
15-20° ↑	Snow	Plow & apply chemical	200	175	250*	Not Recommended
	Frz. rain	Apply Chemical	240	210	300*	400
15-20° ↓	Snow or Frz. rain	Plow & apply chemical	240	210	300*	500 for frz. rain
0-15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not Recommended	300-400	Not Recommended	500 spot treat as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not Recommended	400-600**	Not Recommended	500 spot treat as needed

*Dry salt is not recommended. It is likely to blow off the road before it melts ice.

**A blend of 6-8 gal/ton $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as –10°.

CALIBRATION CHART (US)

Agency: _____

Location: _____

Truck No: _____ Spreader No: _____

Date: _____ By: _____

Gate Opening _____ (inches) (Hopper Type Spreaders)				DISCHARGE RATE (pounds discharged per mile)								
Control Setting	A	B	C	TRAVEL SPEED AND COMPUTATION MULTIPLIER ( )								
	Shaft RPM (Loaded)	Discharge per Revolution (pounds)	Discharge per Minute (lb) (A x B)	5 mph (x 12.00)	10 mph (x 6.00)	15 mph (x 4.00)	20 mph (x 3.00)	25 mph (x 2.40)	30 mph (x 2.00)	35 mph (x 1.71)	40 mph (x 1.50)	45 mph (x 1.33)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

THE ACTUAL APPLICATION RATE (POUNDS PER LANE MILE) **ON THE HIGHWAY IS THE DISCHARGE RATE DIVIDED BY THE NUMBER OF LANES BEING TREATED**

SPREADER CALIBRATION PROCEDURE

Calibration is simply calculating the pounds per mile discharged for each control setting at various travel speeds by first counting the number of auger or conveyor shaft revolutions per minute, measuring the weight of salt discharged in one revolution, then multiply the two to obtain discharge per minute, and finally multiplying the discharge per minute by the time it takes to travel 1 mile. Most spreaders have multiple gate openings; so you must calibrate for specific gate openings.

Equipment needed:

1. Scale to weigh salt
2. Salt collection device
3. Marking device
4. Watch with second hand

Calibration steps:

1. Remove, by-pass or turn off spinner.
2. Warm truck's hydraulic oil to normal operating temperature with spreader system running.
3. Put partial load of salt on truck.
4. Mark shaft end of auger or conveyor.
5. Dump salt on auger.
6. Rev truck engine to operating RPM.
7. Count number of shaft revolutions per minute at each spreader control setting, record.
8. Collect salt discharged for one revolution, weigh it and deduct the weight of the container. (For greater accuracy, collect salt for several revolutions and divide by that number of revolutions to get the weight for one revolution.)
9. Multiply Column A by Column B to get Column C; then multiply Column C by the number of minutes to travel one mile ( ) at various truck speeds to get pounds Discharged per mile.*

*Example: At Control Setting 2, w/ a shaft RPM of 3, a discharge of 18 lbs. per revolution and a speed of 20 mi/hr, the computation is: 3 x 18 x 3.00 = 162 lb/mi.

CALIBRATION OF AUTOMATIC CONTROLS

Automatic controls may be calibrated using the following steps:

1. Remove, by-pass or turn of spinner.
2. Set control on given number.
3. Tie sack or heavy canvas under spreader discharge area.
4. Mark specific distance on a highway or other paved area, such as 1000 ft. .
5. Drive that distance with spreader operating.
6. Weigh salt collected.
7. Multiply weight of salt by 5.28 (in case of 1000 ft.).

Answer will be salt discharged per mile which remains constant regardless of speed, but calibration must be done for each control setting. Some automatic control manufacturers have "simulators" which eliminate need for on-road operation for calibration.