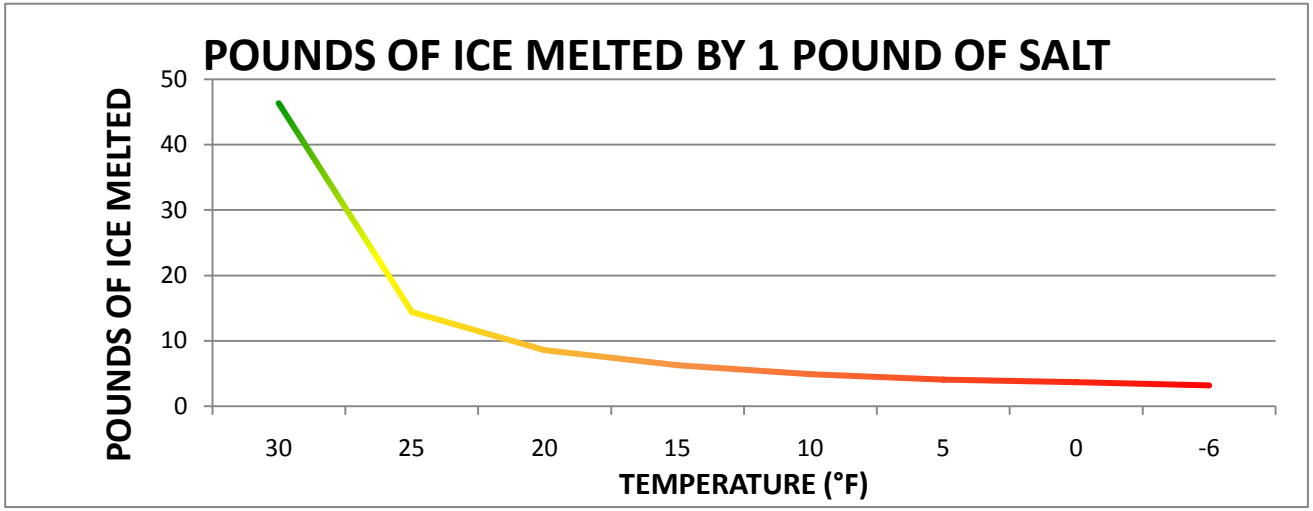
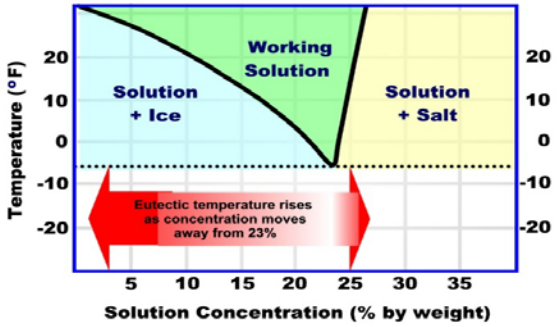
Properties of Salt

Pounds of Ice Melted by 1 Pound of Salt	
°F	lbs of Ice
30	46.3
25	14.4
20	8.6
15	6.3
10	4.9
5	4.1
0	3.7
-6	3.2

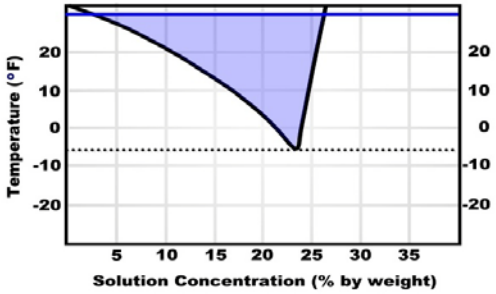


Phase Diagram for Salt (NaCl)

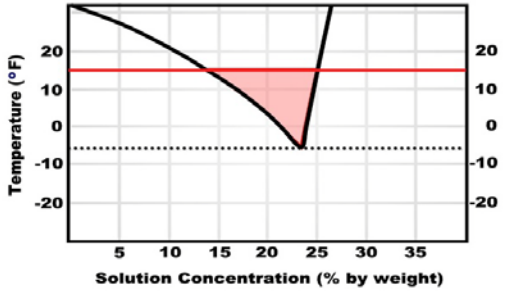


Salt Solution	Eutectic Temperature	
10%	20° F	Too little salt
15%	12°	
20%	0°	
23%	-6°	Most Effective Brine
25%	16°	Too much salt
30%	30° F	

Pavement temperature is 30 degrees -
Salt will work to melt snow or ice when the concentration is as low as about 3% and as high as 27% (the shaded blue zone). At this temperature, the salt can be diluted a lot by melting or additional precipitation and ***still*** continue to work.



Pavement temperature is 15 degrees -
At lower temperatures, a much narrower range of concentrations will work to melt snow or ice. The concentration needs to stay between about 13% and 23% (the red shaded zone). Additional precipitation or melting will dilute the chemicals to a point where they are no longer effective more rapidly than at higher temperatures.

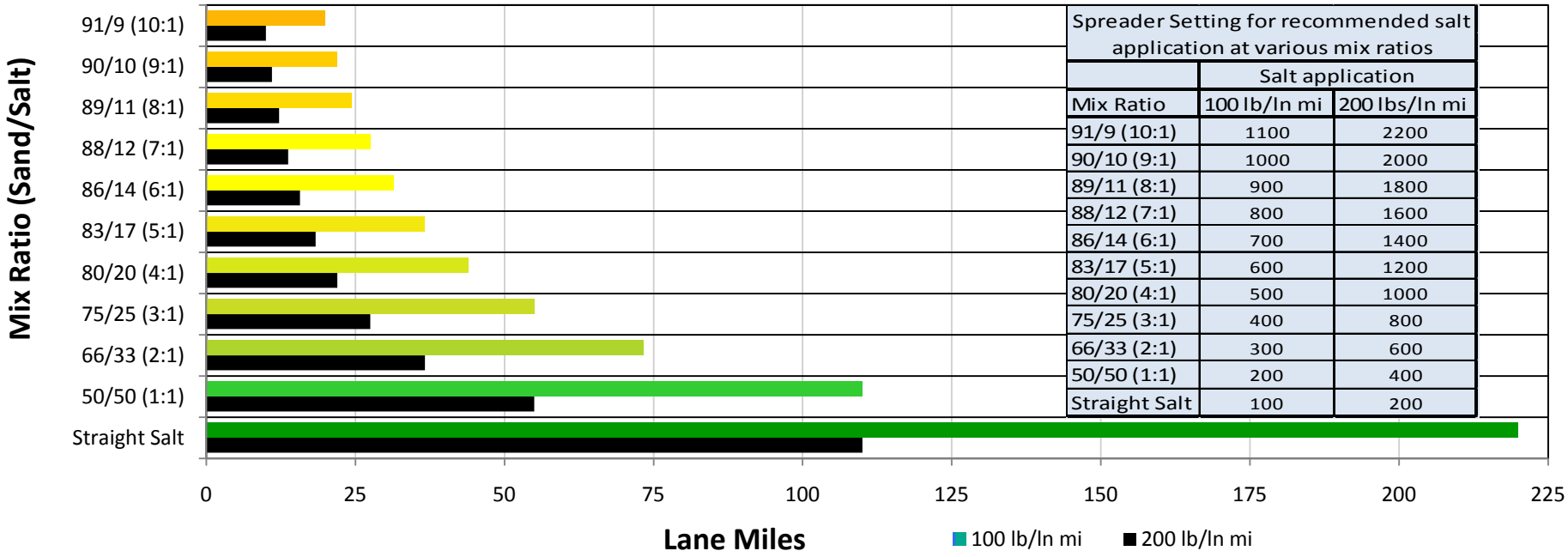


Properties of Salt

Unit weight of salt 1.1 Tons/CY Unit weight of sand 1.875 Tons/CY

Mix Ratio			Unit Weight	Total tons /	Salt Content / 10 CY Truck Load			Distance Traveled (lane miles) per 10 CY Truck Load			
%	Part Sand	Part Salt	Tons / CY	10 CY Load	CY	Tons	LBS	100 lb/ln mi	200 lb/ln mi	300 lb/ln mi	400 lb/ln mi
100%	Straight Salt		1.10	11.0	10.0	11.0	22,000	220	110	73	55
50/50	1	1	1.49	14.9	5.0	5.5	11,000	110	55	37	28
66/33	2	1	1.62	16.2	3.3	3.7	7,333	73	37	24	18
75/25	3	1	1.68	16.8	2.5	2.8	5,500	55	28	18	14
80/20	4	1	1.72	17.2	2.0	2.2	4,400	44	22	15	11
83/17	5	1	1.75	17.5	1.7	1.8	3,667	37	18	12	9
86/14	6	1	1.76	17.6	1.4	1.6	3,143	31	16	10	8
88/12	7	1	1.78	17.8	1.3	1.4	2,750	28	14	9	7
89/11	8	1	1.79	17.9	1.1	1.2	2,444	24	12	8	6
90/10	9	1	1.80	18.0	1.0	1.1	2,200	22	11	7	6
91/9	10	1	1.80	18.0	0.9	1.0	2,000	20	10	7	5

Lane Miles Treated With One 10 CY Truck Load @ 100 and 200 lb of Salt/Lane Mile



Spreader Setting for recommended salt application at various mix ratios

	Salt application	
Mix Ratio	100 lb/ln mi	200 lbs/ln mi
91/9 (10:1)	1100	2200
90/10 (9:1)	1000	2000
89/11 (8:1)	900	1800
88/12 (7:1)	800	1600
86/14 (6:1)	700	1400
83/17 (5:1)	600	1200
80/20 (4:1)	500	1000
75/25 (3:1)	400	800
66/33 (2:1)	300	600
50/50 (1:1)	200	400
Straight Salt	100	200