



HEADWATERS® HOT BRINE

US Patent No. 7,658,861

Specific Gravity by Addition Rate

HOT Brine is 23.3% Sodium Chloride Solution, enhanced with Headwaters® HOT

Headwaters® HOT by volume	HOT Brine Specific Gravity
1%	1.1805
2%	1.1820
3%	1.1835
4%	1.1850
5%	1.1866
6%	1.1881
7%	1.1896
8%	1.1911
9%	1.1926
10%	1.1941
11%	1.1956
12%	1.1971
13%	1.1986
14%	1.2001
15%	1.2017
16%	1.2032
17%	1.2047
18%	1.2062
19%	1.2092



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HEADWATERS® HOT BRINE Liquid Application Rate Guide*

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HOT Brine is 23.3% Sodium Chloride Solution, enhanced with **Headwaters® HOT** at a rate of **10-19% by volume**

As compared to suggested rates for plain brine (gallons per lane-mile)

Pavement temperature, °F, at time of application	Pre-Treatment						Within-Event											
	Snow		Frost / Black Ice		Freezing Rain		Light Snow		Moderate Snow		Heavy Snow		Frost and Black Ice				Freezing Rain	
	Anti-Icing		Anti-Icing		Anti-Icing		Anti-Icing		Anti-Icing		Anti-Icing		Anti-Icing		Deicing		Anti-Icing	
	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine	Plain Brine	HOT Brine
Over 30	48	30-40	44	30-40	55	32-42	48	34-44	57	40-50	66	46-56	44	31-41	98	70-80	48	32-42
26 to 30	70	49-59	57	40-50	76	50-60	70	49-59	76	53-63	83	58-68	57	40-50	109	76-86	74	50-60
21 to 25	92	64-74	70	50-60	NR	62-72	87	62-72	92	65-75	96	68-78	70	50-60	120	87-97	87	62-72
16 to 20	109	75-85	83	58-68	NR	70-80	100	70-80	105	75-85	109	77-87	83	58-68	NR	95-105	NR	70-80
11 to 15	NR	90-100	NR	80-90	NR	82-92	NR	90-100	NR	95-105	NR	110-120	NR	80-90	NR	120-130	NR	82-92
Below 10	NR	**	NR	**	NR	**	NR	**	NR	**	NR	**	NR	**	NR	**	NR	**

* Optimal application rates will vary based on multiple conditions including but not limited to the type of precipitation, air/ground temperatures, wind, humidity, surface material, and application equipment. The stated application rates are only general guidelines, it is the responsibility of the user to determine the appropriate application rate for their purpose.

** HOT Brine has been successfully utilized at temperatures well below 10°F, however as a rule we do not recommend liquid deicer be utilized below 10°F, and therefore do not publish suggested application rates for temperatures below 10°F.

The values used for "Plain Brine" are from the "Clear Roads Study Establishing Effective Salt and Anti-icing Application Rates" by Blackburn and Associates on September 12, 2014: http://clearroads.org/wp-content/uploads/dlm_uploads/Summary-Report-of-Task-2-Findings.pdf



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