



From Simple Salt-water to Super Ice Melter

Crafting High Performance Brine Based Deicers

**2017 Michigan Winter Operations Conference
Oct. 18th, 2017 Shanty Creek Resort**

**Denver Preston
K-Tech Specialty Coatings**

Pre-Presentation Disclosure



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- **K-Tech is a deicer manufacture**



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- **K-Tech is a deicer manufacture**
- **K-Tech has no dog in the race in Michigan**
 - **Have never bid an MDOT contract**
 - **No county road commission contracts**



Pre-Presentation Disclosure

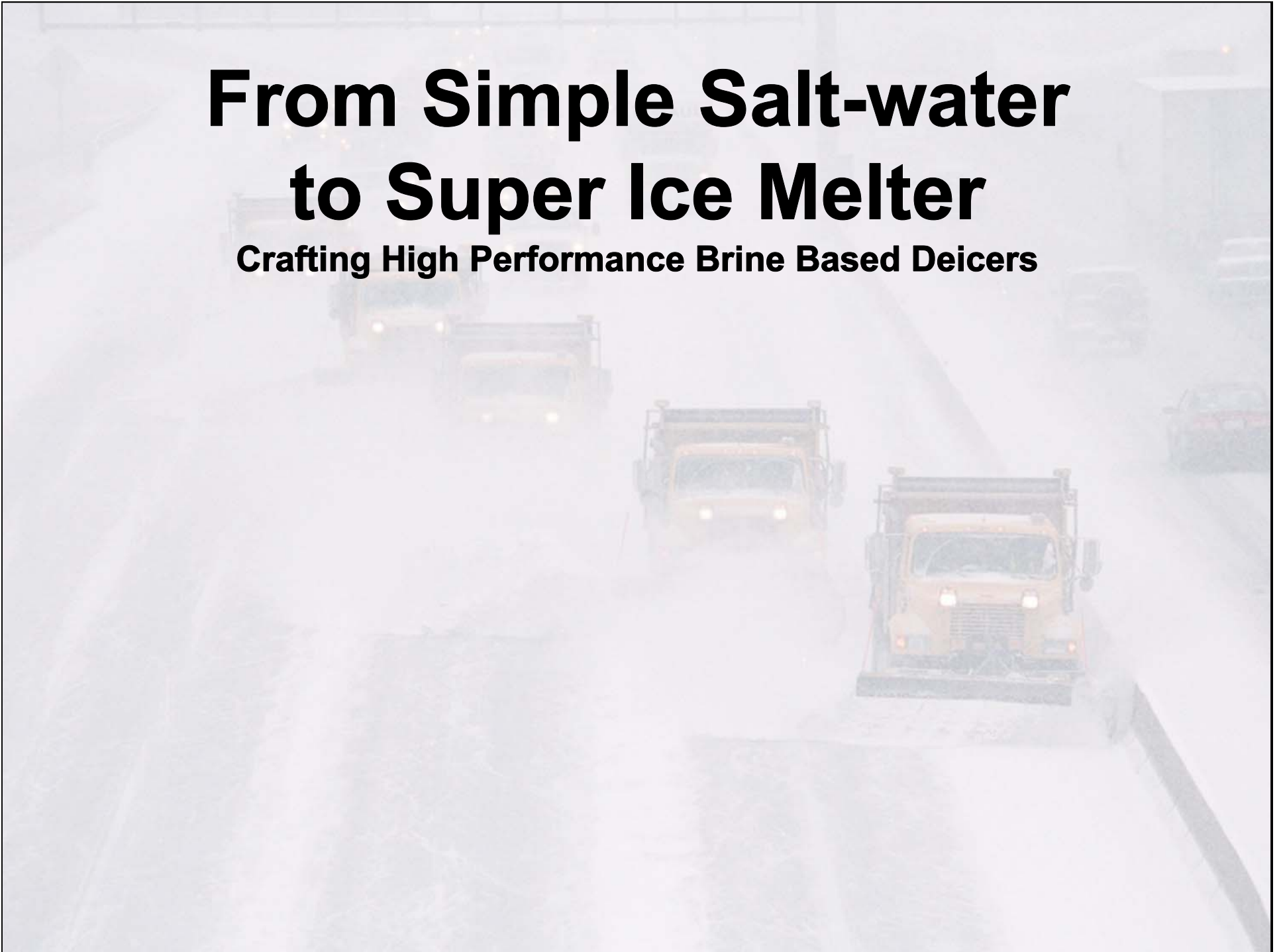
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- **K-Tech has no dog in the race in Michigan**
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- **K-Tech listens & learns from Snowfighters**
 - **200 agencies in 10 states**
 - **5 State DOTs & 2 State Tollways**
 - **Developed 4 PNS approved deicers**

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 - **5 State DOTs & 2 State Tollways**
 - **Developed 4 PNS approved deicers**
- **K-Tech pays it forward**
 - **Sharing what we've learned to benefit all**
 - **Questions are important. \$20.00 per**

From Simple Salt-water to Super Ice Melter

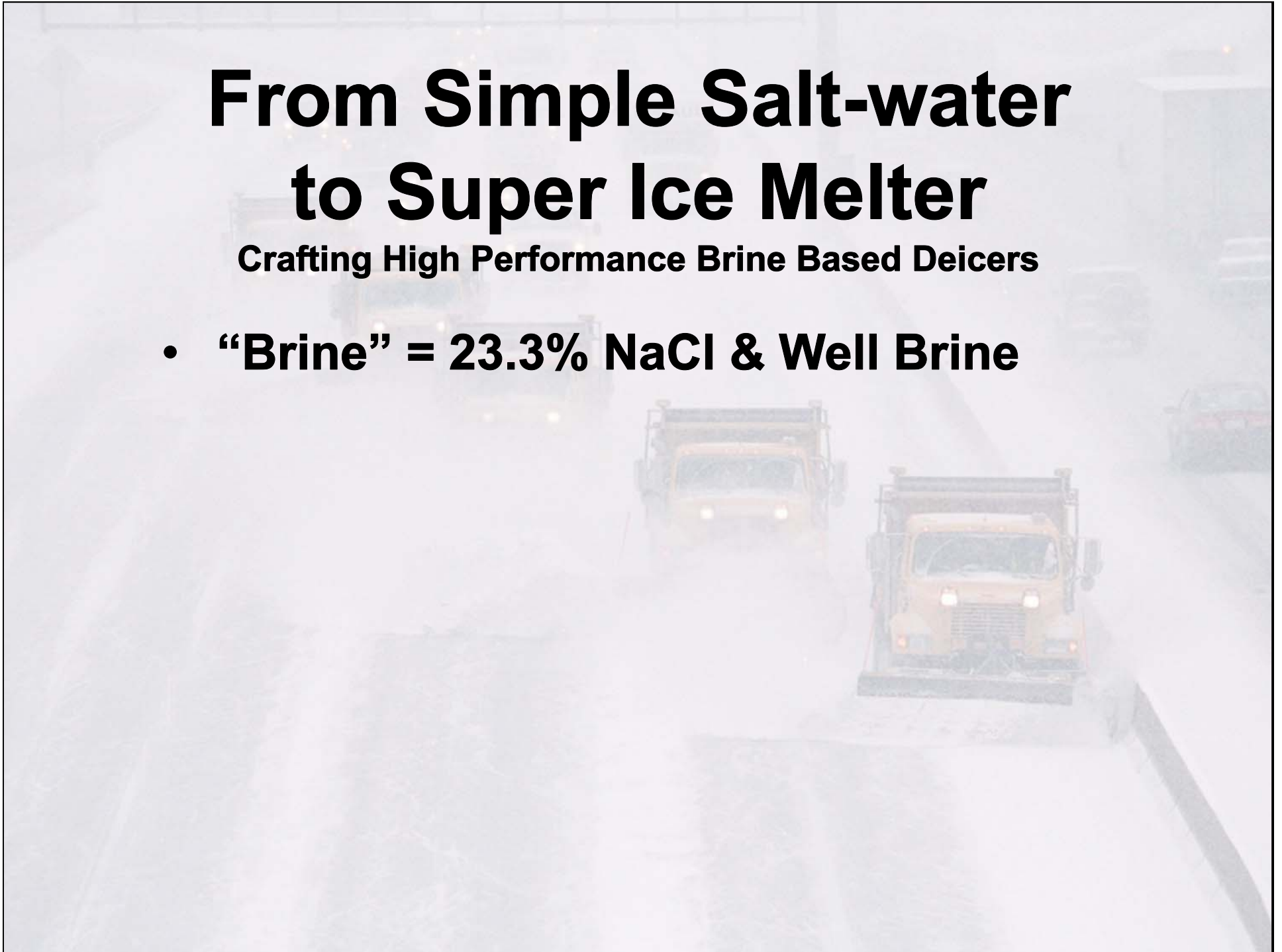
Crafting High Performance Brine Based Deicers



From Simple Salt-water to Super Ice Melter

Crafting High Performance Brine Based Deicers

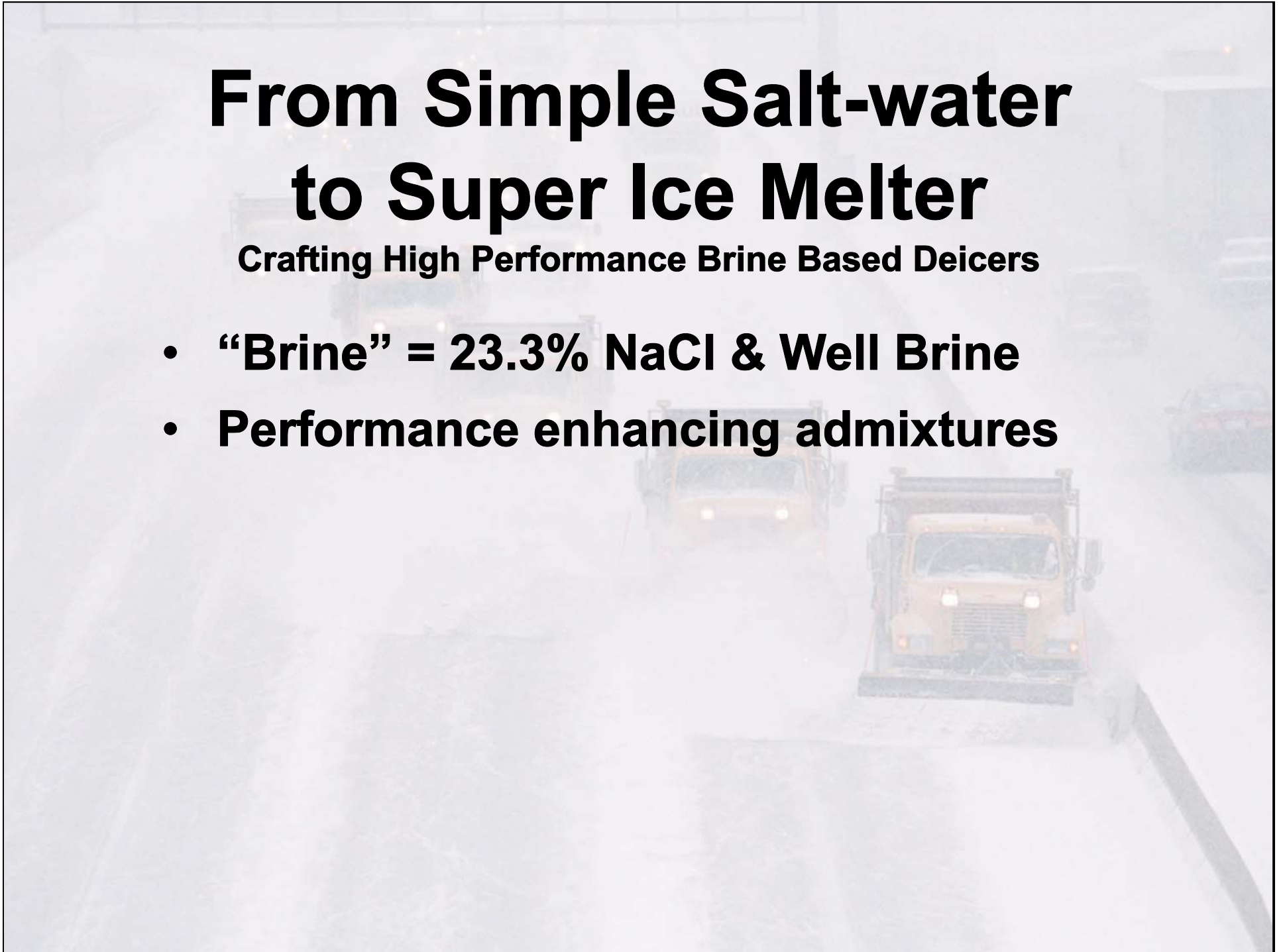
- **“Brine” = 23.3% NaCl & Well Brine**



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Crafting High Performance Brine Based Deicers

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- **Performance enhancing admixtures**



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- **Performance enhancing admixtures**
- **What these admixtures contain along with active ingredient content levels**

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Crafting High Performance Brine Based Deicers

- **“Brine” = 23.3% NaCl & Well Brine**
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- **What these admixtures contain along with active ingredient content levels**
- **What high performance brine based deicer formulas should include**

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Crafting High Performance Brine Based Deicers

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- **Performance enhancing admixtures**
- **What these admixtures contain along with active ingredient content levels**
- **What high performance brine based deicer formulas should include**
- **What enhanced performance really means, in terms of cost reductions**

Facts About 23.3% NaCl Brine



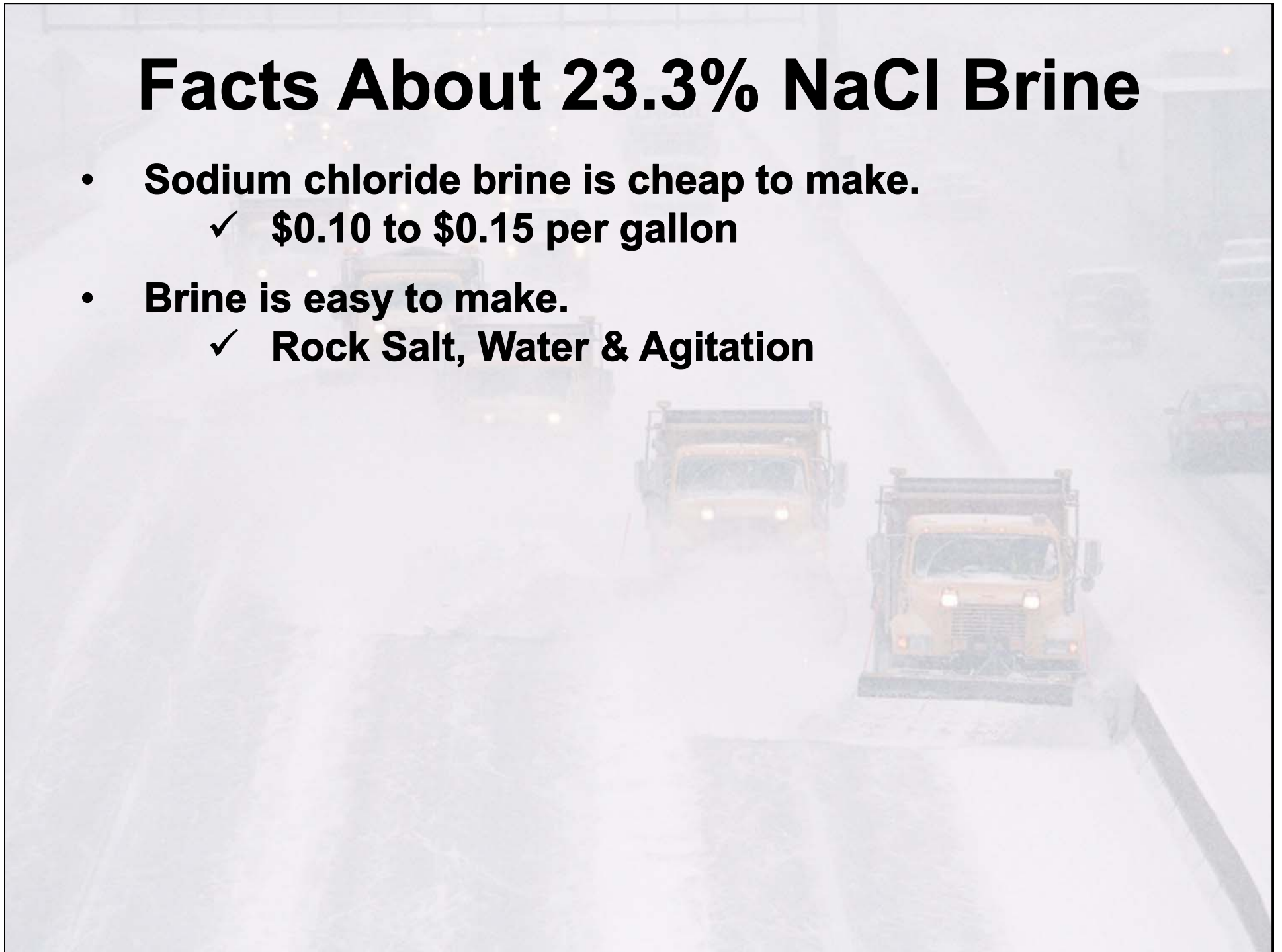
Facts About 23.3% NaCl Brine

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 - ✓ \$0.10 to \$0.15 per gallon



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 - ✓ Rock Salt, Water & Agitation



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 - ✓ **Preventing precipitation from bonding**



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- **Brine, when used as a salt pre-wetting agent, saves money over spreading dry rock salt.**
 - ✓ **Reduces bounce and scatter loss**
 - ✓ **Speeds up the brining action/ice melting**

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- **Brine, when used as a salt pre-wetting agent, saves money over spreading dry rock salt.**
 - ✓ **Reduces bounce and scatter loss**
 - ✓ **Speeds up the brining action/ice melting**
- **For these reasons brine is the most popular liquid deicer on earth!**

Facts About 23.3% NaCl Brine

**But brine has serious
performance limitations**



Facts About 23.3% NaCl Brine

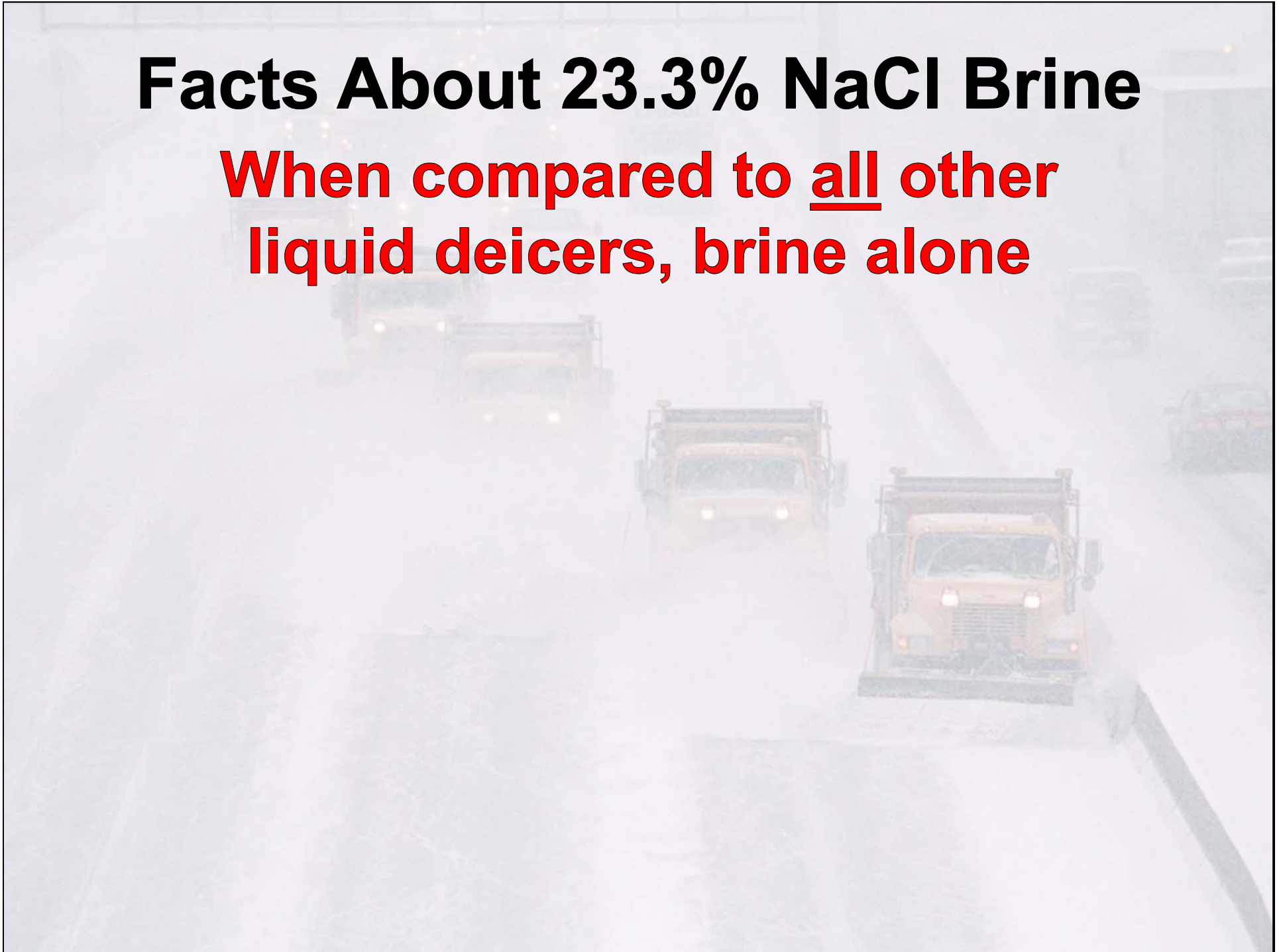
**But brine has serious
performance limitations**

AND

**these performance
limitations cost agencies
huge sums of money!**

Facts About 23.3% NaCl Brine

When compared to all other
liquid deicers, brine alone



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the highest water content,

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the worst eutectic freeze point,

-5.8°F

AND the worst effective temperature range.

+20°F

Facts About 23.3% NaCl Brine

**When compared to all other
liquid deicers, brine alone**

**is the least effective and
most cost prohibitive deicer
an agency can possibly use!**

**Proof of this is crystal clear
for inquiring minds.**

Advanced Laboratories, Inc.
40 West Louise Avenue
Salt Lake City, UT 84115
Phone (801) 485-1800 Fax (801) 484-9211

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Facts About 23.3% NaCl Brine

When Used as a Salt Pre-Wetting Agent

Requested: One (1) sample for chemical Analysis

1. SHRP (205.1)
Deicer Weight: 45.0 g
Replicates: 3

SHRP 205.1		
Temperature = 25°F		
Basic Salt		
Time (min)	Brine volume (ml)	Standard error (%)
10	7.5	3.9
20	14.4	4.6
30	22.5	2.8
45	27.6	1.5
60	31.6	0.7

SHRP 205.1		
Temperature = 15°F		
Basic Salt		
Time (min)	Brine volume (ml)	Standard error (%)
10	3.4	4.6
20	6.6	3.2
30	9.2	2.9
45	12.5	0.6
60	15.4	1.1

SHRP 205.1		
Temperature = 5°F		
Basic Salt		
Time (min)	Brine volume (ml)	Standard error (%)
10	1.5	7.1
20	2.3	6.3
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Virtually no ice melt
capacity improvement!

Facts About 23.3% NaCl Brine

When Used as a **Salt Pre-Wetting Agent**

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sodium chloride on sodium chloride.**



Facts About 23.3% NaCl Brine

When Used as a **Salt Pre-Wetting Agent**

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When Used as a **Salt Pre-Wetting Agent**

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**Sodium chloride on sodium chloride
is just a little more sodium chloride.**

(16.0 lbs. per ton @ 7 gallons per ton)

(0.8% Additional Salt)

(48 lbs. per ton @ 21 gallons per ton)

(2.4% Additional Salt)

**A little more sodium chloride
will melt a little more ice!**



Salt Brine Blending to Optimize Deicing and Anti-icing Performance and Cost Effectiveness, Phase I & II

Stephen J Druschel, PhD, PE
Sarah Green
Alex Raymond



Untreated Salt vs Brine Treated Salt

400 lbs/lm & 800 lbs/lm

15 Gallons Per Ton

4°F, 13°F & 25°F



“Pre-wet (brine) caused no observable difference in melt performance at any of the conditions tested.”



**Quoted in 2012 Minnesota LTAP article titled
*Salt Brine Blending To Improve Deicing
and Anti-Icing Performance***

“Considering that ice melt capacity is the most important aspect...when all is said and done, when we hold the temperature even, when the ice is consistent...the amount of difference we’re seeing [in ice melt capacity] between rock salt and **other treatments** is minimal 10 percent, maybe 40 percent at the very best,” he said.



**Would you spend a
little more money to get:
10% to 40% better**



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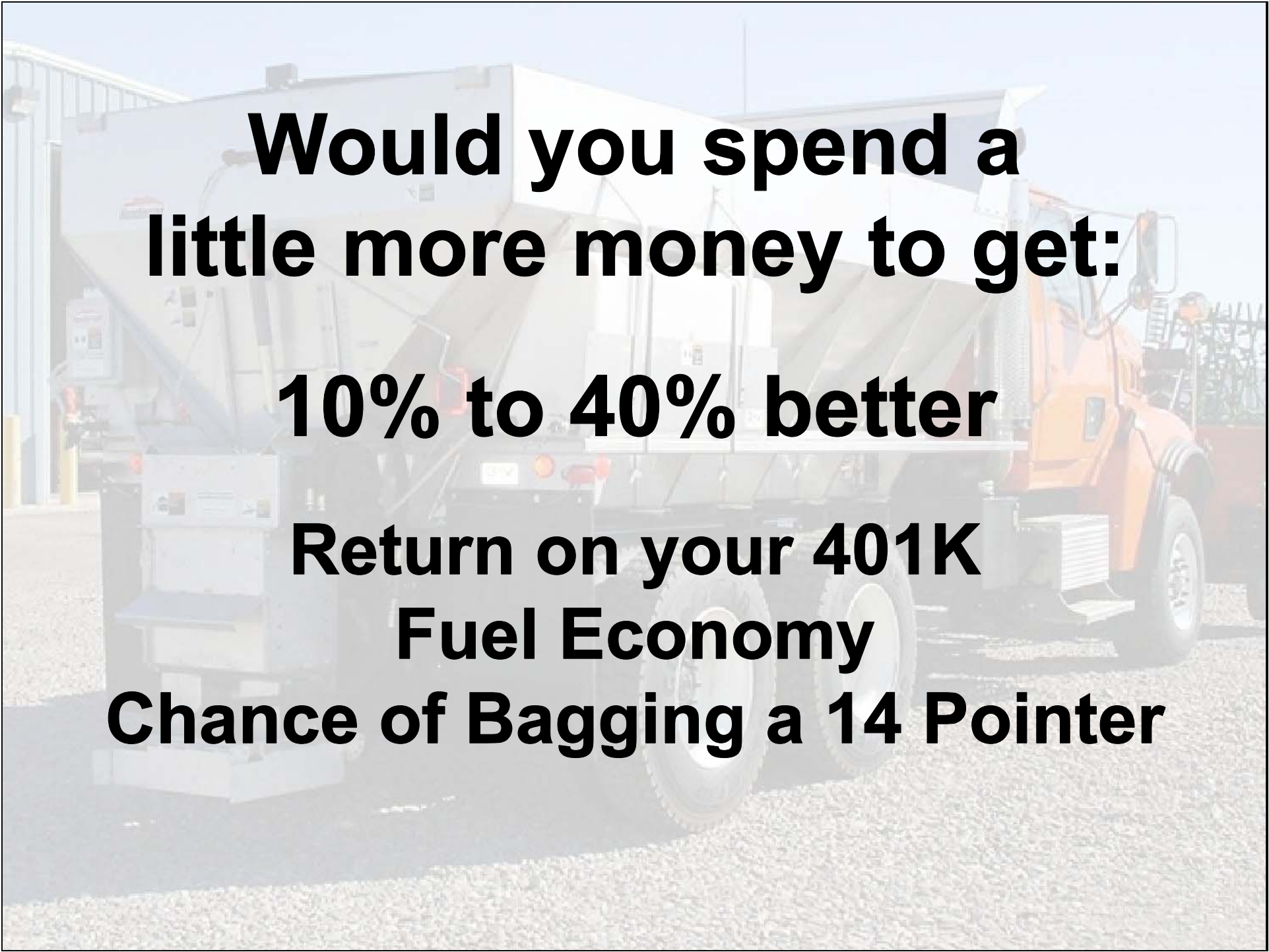
Return on your 401K

A large white tanker truck with a yellow cab is parked on a gravel lot. The truck has a large cylindrical tank and a yellow discharge chute. The background shows a clear blue sky and some industrial structures.

**Would you spend a
little more money to get:**

10% to 40% better

**Return on your 401K
Fuel Economy**

A large white and orange dump truck is parked on a gravel surface in front of a building. The truck's bed is raised, and it has a large orange cab. The background shows a building with a corrugated metal roof and some trees in the distance.

**Would you spend a
little more money to get:**

10% to 40% better

Return on your 401K

Fuel Economy

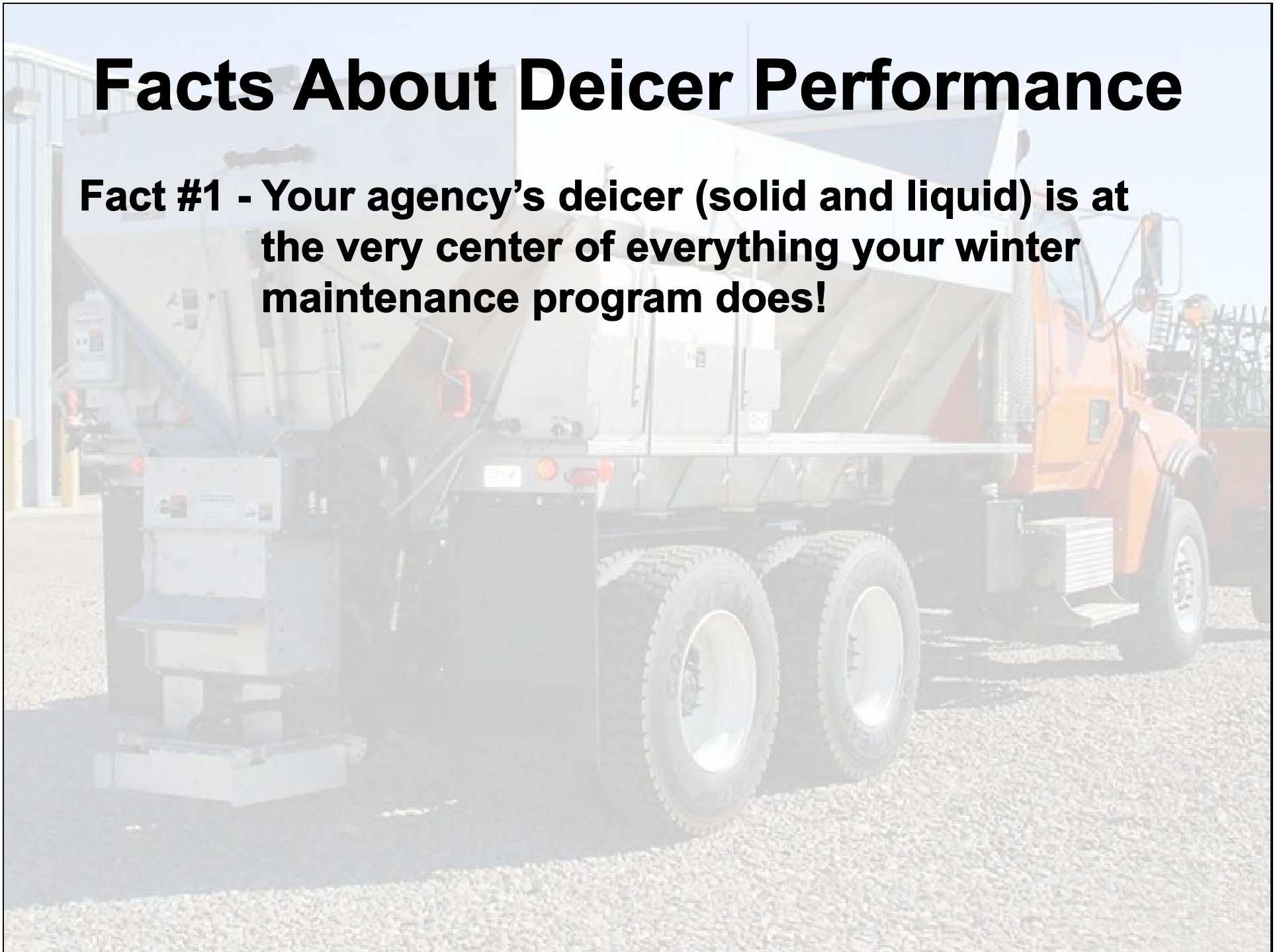
Chance of Bagging a 14 Pointer

Facts About Deicer Performance



Facts About Deicer Performance

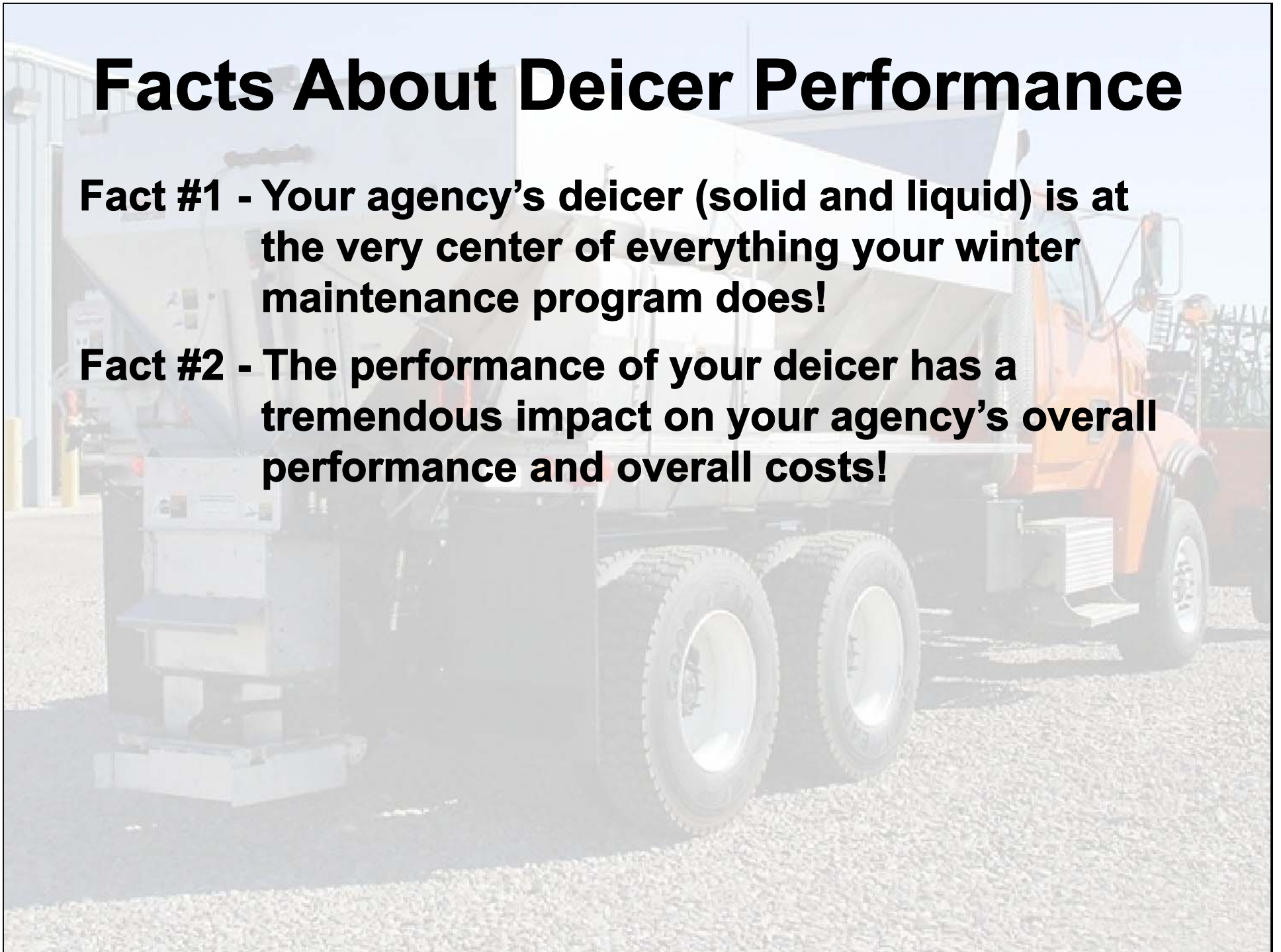
Fact #1 - Your agency's deicer (solid and liquid) is at the very center of everything your winter maintenance program does!



Facts About Deicer Performance

Fact #1 - Your agency's deicer (solid and liquid) is at the very center of everything your winter maintenance program does!

Fact #2 - The performance of your deicer has a tremendous impact on your agency's overall performance and overall costs!



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Fact #2 - The performance of your deicer has a tremendous impact on your agency's overall performance and overall costs!

Fact #3 - Deicer is your agency's number one expenditure! In many cases it's more costly than labor and equipment costs combined!

Facts About Deicer Performance

Fact #1 - Your agency's deicer (solid and liquid) is at the very center of everything your winter maintenance program does!

Fact #2 - The performance of your deicer has a tremendous impact on your agency's overall performance and overall costs!

Fact #3 - Deicer is your agency's number one expenditure! In many cases it's more costly than labor and equipment costs combined!

Fact #4 - The better your agency's deicer performs, the less of it you need to melt the same amount of ice, or the more ice and snow you can melt in the same amount of time!

Simple Mathematical Logic

If salt “A”
melts **10.0% more** ice than
salt “B”,

then salt “A” can melt
the same amount of ice as
salt “B” with

9.1% less salt!

Simple Mathematical Logic

If salt “A”
melts **20.0% more** ice than
salt “B”,

then salt “A” can melt
the same amount of ice as
salt “B” with

16.7% less salt!

Simple Mathematical Logic

If salt “A”
melts **40.0% more** ice than
salt “B”,

then salt “A” can melt
the same amount of ice as
salt “B” with

28.5% less salt!



**Is boosting rock salt's
ice melting performance by
40.0% really achievable?**

Deicer Technology

3 Primary Components

What & How Much Do They Contain?

**Non-Exothermic
Chlorides**

**Exothermic
Chlorides**

Sugars

Deicer/Deicer Blends	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	Total Active Ingredient
23.3% NaCl Brine	23.30%		23.30%					23.30%
Michigan Well Brine	5.25%	1.25%	6.50%	16.50%	5.70%	22.20%		28.70%
CaCl ₂ with Organic				28.50%		28.50%	1.00%	29.50%
32.0% CaCl ₂				32.00%		32.00%		32.00%
"Good" 55% Solids Beet Juice	0.25%	0.25%	0.50%				16.1%-20.2%	16.6%-20.7%
Molasses/Chloride Deicer	3.70%	2.70%	6.40%	11.90%	3.40%	15.30%	16.00%	37.70%
30% Good Beet juice, 70% Brine	16.30%	0.07%	16.37%				4.8%-6.0%	21.2%-22.4%
10/15/75 Super Mix (Good Juice)	17.50%	0.04%	17.54%	3.20%		3.20%	2.00%	22.74%
50% Molasses/Chloride 50% NaCl	13.00%	1.37%	14.37%	6.03%	1.78%	7.81%	8.38%	30.56%

Deicer Technology

3 Primary Components

What & How Much Do They Contain?

Non-exothermic chlorides are sodium chloride (NaCl) and potassium chloride (KCl). They are good ice melters but not great ice melters.

Deicer/Deicer Blends	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	Total Active Ingredient
23.3% NaCl Brine	23.30%		23.30%					23.30%
Michigan Well Brine	5.25%	1.25%	6.50%	16.50%	5.70%	22.20%		28.70%
CaCl ₂ with Organic				28.50%		28.50%	1.00%	29.50%
32.0% CaCl ₂				32.00%		32.00%		32.00%
"Good" 55% Solids Beet Juice	0.25%	0.25%	0.50%				16.1%-20.2%	16.6%-20.7%
Molasses/Chloride Deicer	3.70%	2.70%	6.40%	11.90%	3.40%	15.30%	16.00%	37.70%
30% Good Beet juice, 70% Brine	16.30%	0.07%	16.37%				4.8%-6.0%	21.2%-22.4%
10/15/75 Super Mix (Good Juice)	17.50%	0.04%	17.54%	3.20%		3.20%	2.00%	22.74%
50% Molasses/Chloride 50% NaCl	13.00%	1.37%	14.37%	6.03%	1.78%	7.81%	8.38%	30.56%

Deicer Technology

3 Primary Components

What & How Much Do They Contain?

**Exothermic chlorides are calcium chloride (CaCl_2) and magnesium chloride (MgCl_2).
These chlorides are great ice melters.**

Deicer/Deicer Blends	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	Total Active Ingredient
23.3% NaCl Brine	23.30%		23.30%					23.30%
Michigan Well Brine	5.25%	1.25%	6.50%	16.50%	5.70%	22.20%		28.70%
CaCl ₂ with Organic				28.50%		28.50%	1.00%	29.50%
32.0% CaCl ₂				32.00%		32.00%		32.00%
"Good" 55% Solids Beet Juice	0.25%	0.25%	0.50%				16.1%-20.2%	16.6%-20.7%
Molasses/Chloride Deicer	3.70%	2.70%	6.40%	11.90%	3.40%	15.30%	16.00%	37.70%
30% Good Beet juice, 70% Brine	16.30%	0.07%	16.37%				4.8%-6.0%	21.2%-22.4%
10/15/75 Super Mix (Good Juice)	17.50%	0.04%	17.54%	3.20%		3.20%	2.00%	22.74%
50% Molasses/Chloride 50% NaCl	13.00%	1.37%	14.37%	6.03%	1.78%	7.81%	8.38%	30.56%

Deicer Technology

3 Primary Components

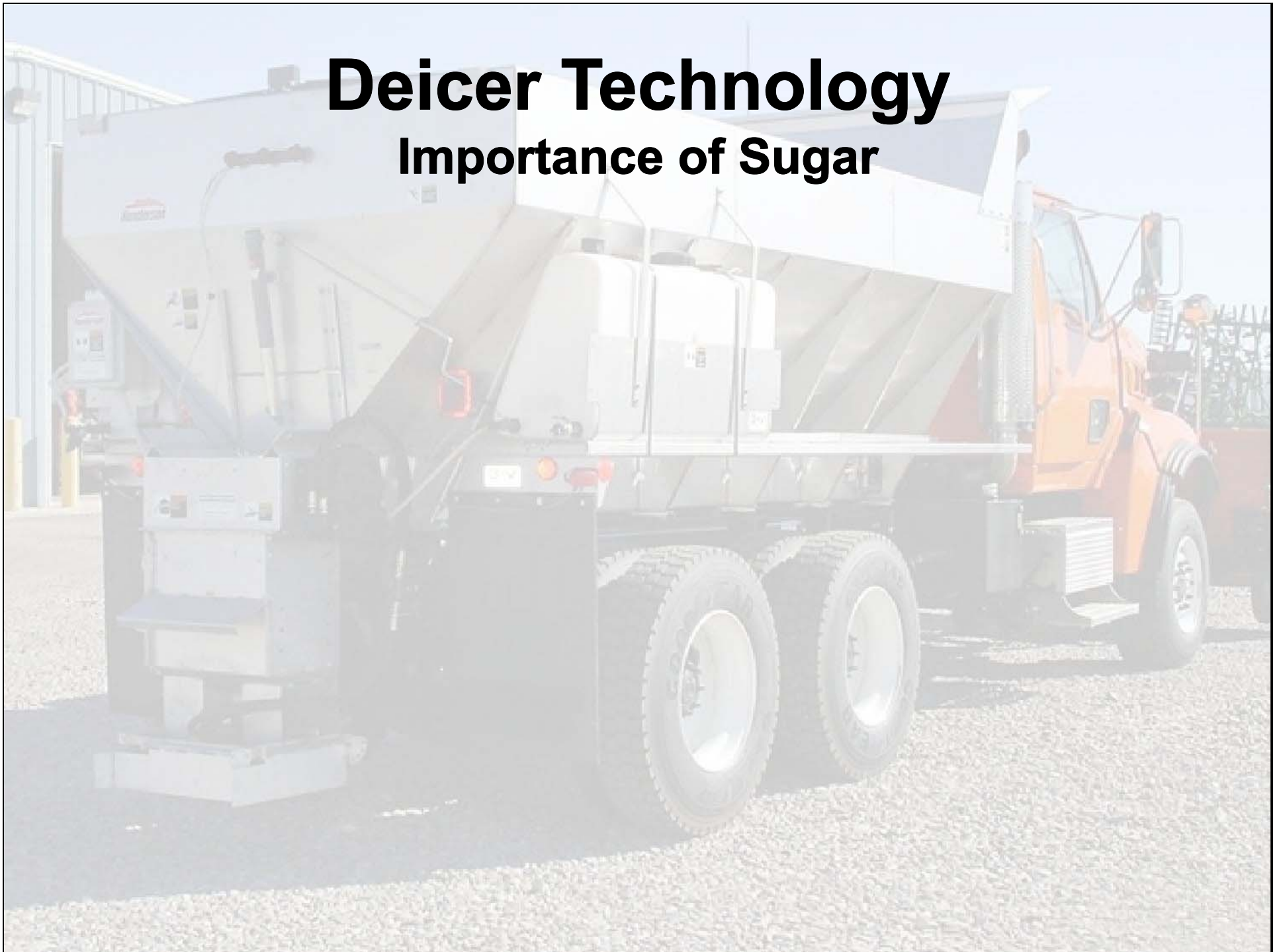
What & How Much Do They Contain?

Sugar by its lonesome can't melt ice, but of the 3 primary components, **sugar is the most important of all! It's called **synergy**, the interaction of two or more substances who's combined effect is greater than the sum of their separate effects.**

Deicer/Deicer Blends	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	Total Active Ingredient
23.3% NaCl Brine	23.30%		23.30%					23.30%
Michigan Well Brine	5.25%	1.25%	6.50%	16.50%	5.70%	22.20%		28.70%
CaCl ₂ with Organic				28.50%		28.50%	1.00%	29.50%
32.0% CaCl ₂				32.00%		32.00%		32.00%
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50% Molasses/Chloride 50% NaCl	13.00%	1.37%	14.37%	6.03%	1.78%	7.81%	8.38%	30.56%

Deicer Technology

Importance of Sugar



Deicer Technology

Importance of Sugar

1. Sugar suppresses the freeze point of rock salt and brine.



Deicer Technology

Importance of Sugar

1. Sugar suppresses the freeze point of rock salt and brine.
2. Sugar lowers the effective working temperature of rock salt and brine.





Deicer Technology

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1. Sugar suppresses the freeze point of rock salt and brine.
2. Sugar lowers the effective working temperature of rock salt and brine.
3. Sugar increases the ice melt capacity of rock salt and brine.



Deicer Technology

Importance of Sugar

1. Sugar suppresses the freeze point of rock salt and brine.
2. Sugar lowers the effective working temperature of rock salt and brine.
3. Sugar increases the ice melt capacity of rock salt and brine.
4. Sugar reduces the corrosion value of rock salt and brine. Mitigates the bad reputation of CaCl_2 .



Deicer Technology

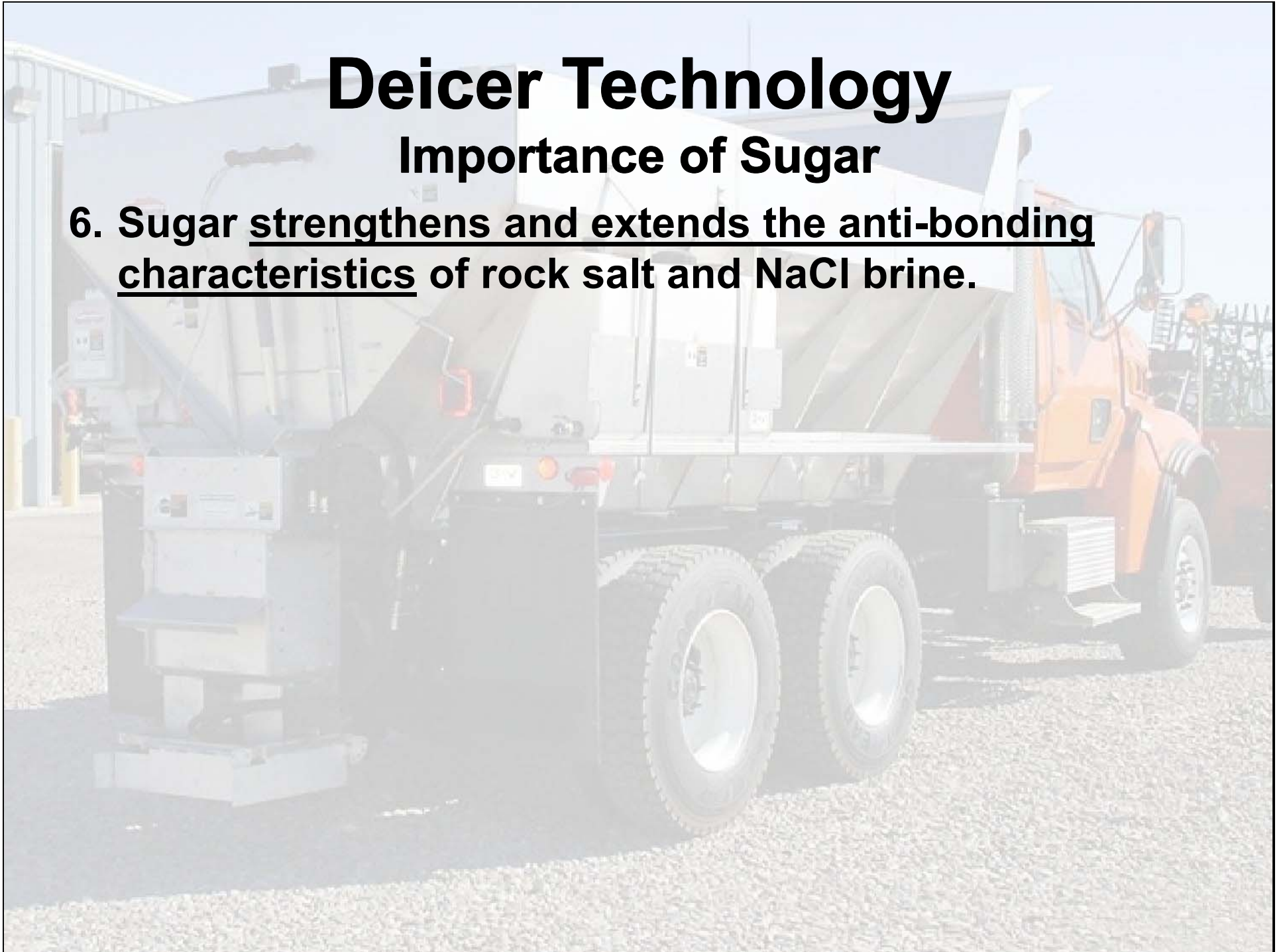
Importance of Sugar

1. Sugar suppresses the freeze point of rock salt and brine.
2. Sugar lowers the effective working temperature of rock salt and brine.
3. Sugar increases the ice melt capacity of rock salt and brine.
4. Sugar reduces the corrosion value of rock salt and brine. Mitigates the bad reputation of CaCl_2 .
5. Sugar acts as a cryoprotectant. Cryoprotectants
 - A. inhibit the formation of ice crystals
 - B. slow down the rate of refreeze Mitigates the bad reputation of CaCl_2 .

Deicer Technology

Importance of Sugar

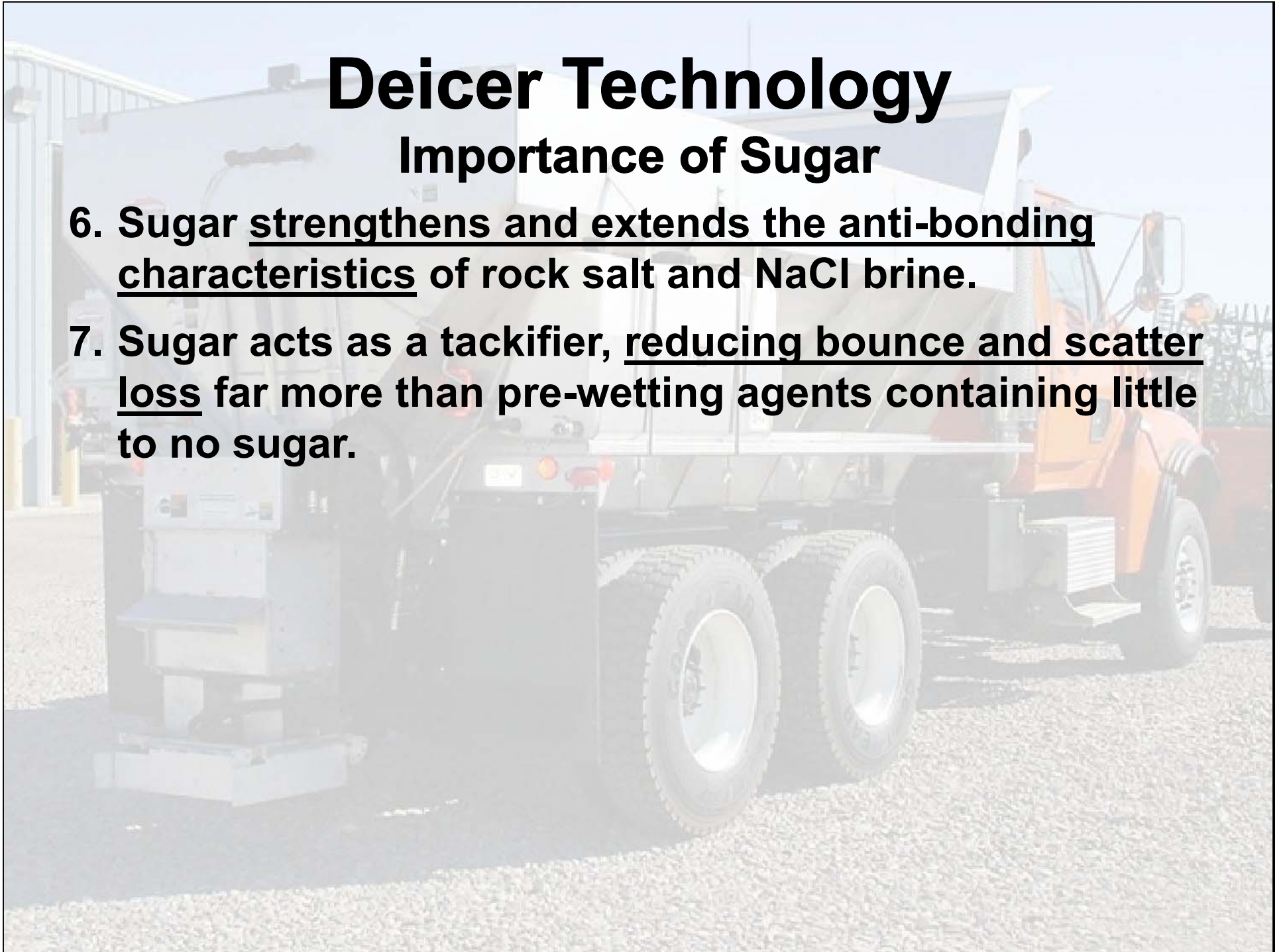
6. Sugar strengthens and extends the anti-bonding characteristics of rock salt and NaCl brine.



Deicer Technology

Importance of Sugar

6. Sugar strengthens and extends the anti-bonding characteristics of rock salt and NaCl brine.
7. Sugar acts as a tackifier, reducing bounce and scatter loss far more than pre-wetting agents containing little to no sugar.





Deicer Technology

Importance of Sugar

6. Sugar strengthens and extends the anti-bonding characteristics of rock salt and NaCl brine.
7. Sugar acts as a tackifier, reducing bounce and scatter loss far more than pre-wetting agents containing little to no sugar.
8. Sugar strengthens and extends the residual effect of rock salt and NaCl brine. Anti-icing without anti-icing!

A large white Deicer Technology truck is parked on a gravel surface. The truck has a large tank on the back and a spreading mechanism. The background is slightly blurred, showing some industrial structures.

Deicer Technology

Importance of Sugar

6. Sugar strengthens and extends the anti-bonding characteristics of rock salt and NaCl brine.
7. Sugar acts as a tackifier, reducing bounce and scatter loss far more than pre-wetting agents containing little to no sugar.
8. Sugar strengthens and extends the residual effect of rock salt and NaCl brine. Anti-icing without anti-icing!
9. Dark sugar increases the ability of rock salt and brine to absorb solar radiation (heat). If they absorb heat, they're emitting heat!

**Untreated
23.3% NaCl Brine**

**Molasses/Chloride
Treated Brine**

**Untreated
Rock Salt**

**Molasses/Chloride
Treated Salt**



**Dark sugar's effect on a deicer's
heat absorption & heat emission
3-10-17, Sunny & 28°F**

**Untreated
Rock Salt**



**Molasses/Chloride
Treated Rock Salt**



+5.5°F

**Dark sugar's effect on a deicer's
heat absorption & heat emission
3-10-17, Sunny & 28°F**

**Untreated
NaCl Brine**



**Molasses/Chloride
Treated NaCl Brine**



+10.2°F

**Dark sugar's effect on a deicer's
heat absorption & heat emission
3-10-17, Sunny & 28°F**

Deicer Technology

Importance of Sugar

6. Sugar strengthens and extends the anti-bonding characteristics of rock salt and NaCl brine.
7. Sugar acts as a tackifier, reducing bounce and scatter loss far more than pre-wetting agents containing little to no sugar.
8. Sugar strengthens and extends the residual effect of rock salt and NaCl brine. Anti-icing without anti-icing!
9. **Dark sugar increases the ability of rock salt and brine to absorb solar radiation (heat). If they absorb heat, they're emitting heat!**

Clear deicers like 32% CaCl_2 , 23.3% NaCl brine and corn syrup based deicer do not have this ability.

Deicer Technology

3 Primary Components

What & How Much Do They Contain?

Figuring out which deicer is going to perform the best does not have to be a guessing game.

Deicer/Deicer Blends	Non-Exothermic Chlorides			Exothermic Chlorides			Sugars	Total Active Ingredient
	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	
23.3% NaCl Brine	23.30%		23.30%					23.30%
Michigan Well Brine	5.25%	1.25%	6.50%	16.50%	5.70%	22.20%		28.70%
CaCl ₂ with Organic				28.50%		28.50%	1.00%	29.50%
32.0% CaCl ₂				32.00%		32.00%		32.00%
"Good" 55% Solids Beet Juice	0.25%	0.25%	0.50%				16.1%-20.2%	16.6%-20.7%
Molasses/Chloride Deicer	3.70%	2.70%	6.40%	11.90%	3.40%	15.30%	16.00%	37.70%
30% Good Beet juice, 70% Brine	16.30%	0.07%	16.37%				4.8%-6.0%	21.2%-22.4%
10/15/75 Super Mix (Good Juice)	17.50%	0.04%	17.54%	3.20%		3.20%	2.00%	22.74%
50% Molasses/Chloride 50% NaCl	13.00%	1.37%	14.37%	6.03%	1.78%	7.81%	8.38%	30.56%

Very, Very Important



Deicer Technology

3 Primary Components

What & How Much Do They Contain?

Figuring out which deicer is going to perform the best does not have to be a guessing game.

Deicer/Deicer Blends	Non-Exothermic Chlorides			Exothermic Chlorides			Sugars	Total Active Ingredient
	NaCl	KCl	Total Non-Exothermic Chloride	CaCl ₂	MgCl ₂	Total Exothermic Chloride	Total Sugar	
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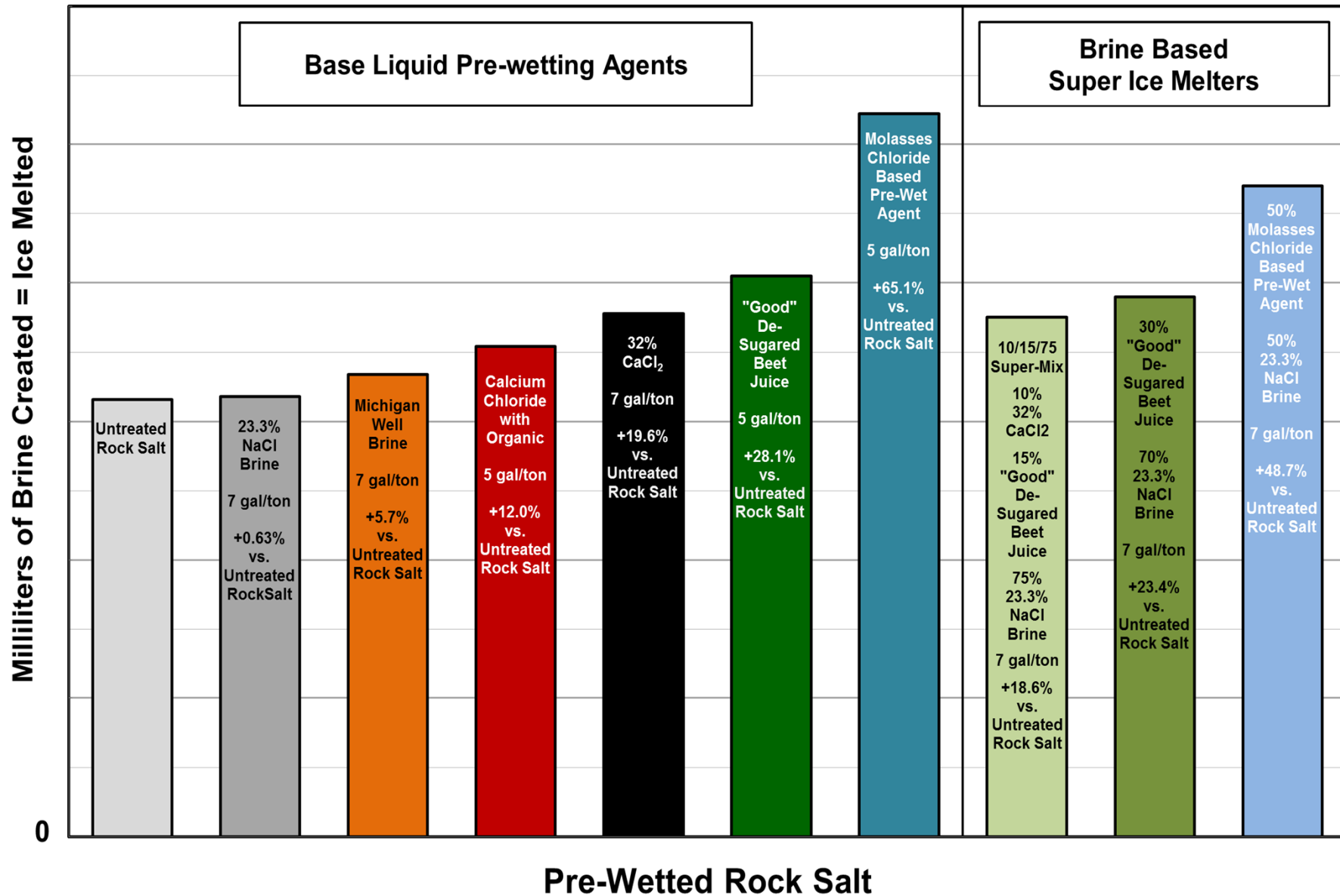
Very, Very Important



Pre-Wetted Rock Salt - Ice Melting Performance Comparison @ 25°F

Modified SHRP H-205.1 Ice Melt Capacity Solids

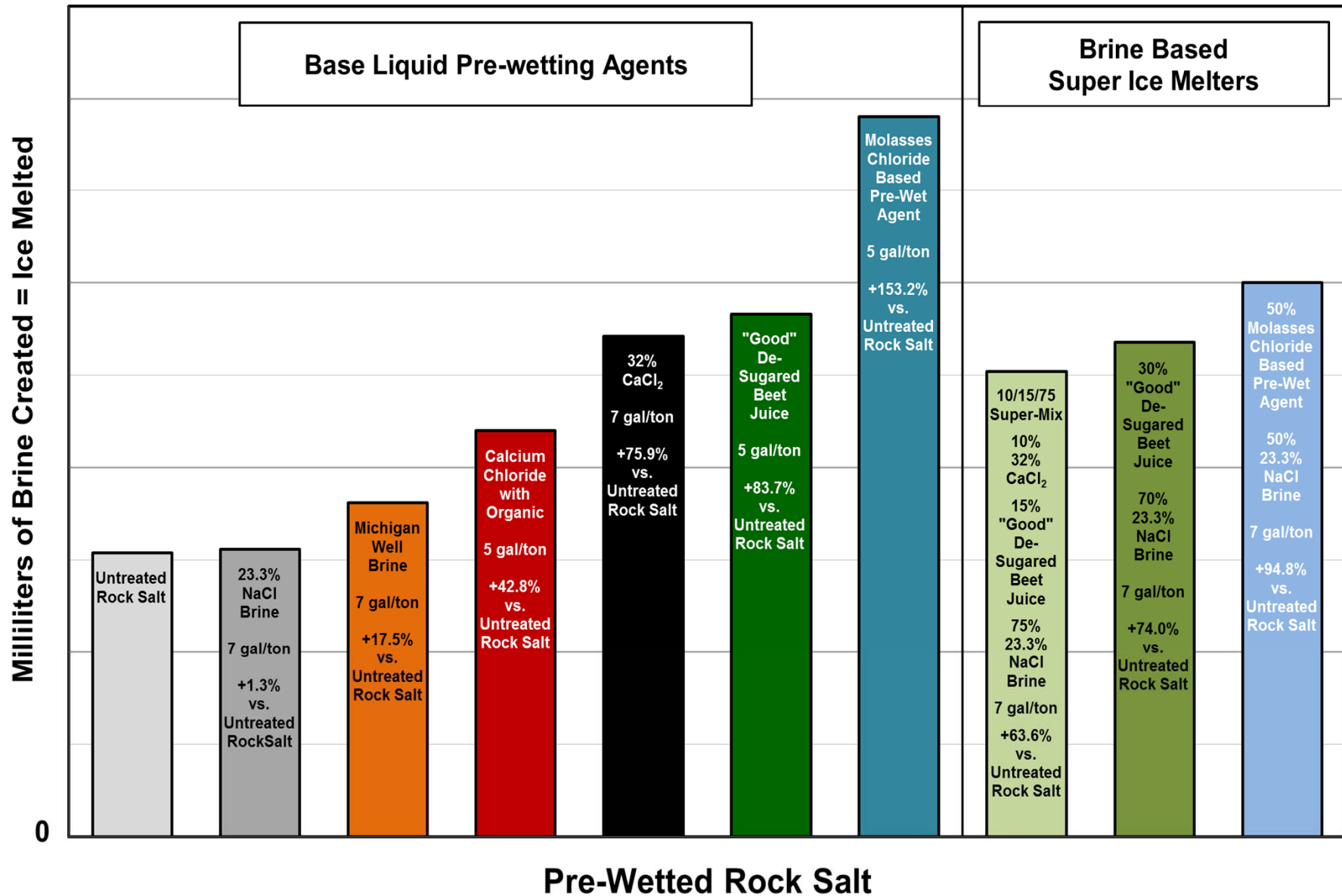
Advanced Laboratories, Inc. Salt Lake City, UT - Margin of Error 3.6%



Pre-Wetted Rock Salt - Ice Melting Performance Comparison @ 15°F

Modified SHRP H-205.1 Ice Melt Capacity **Solids**

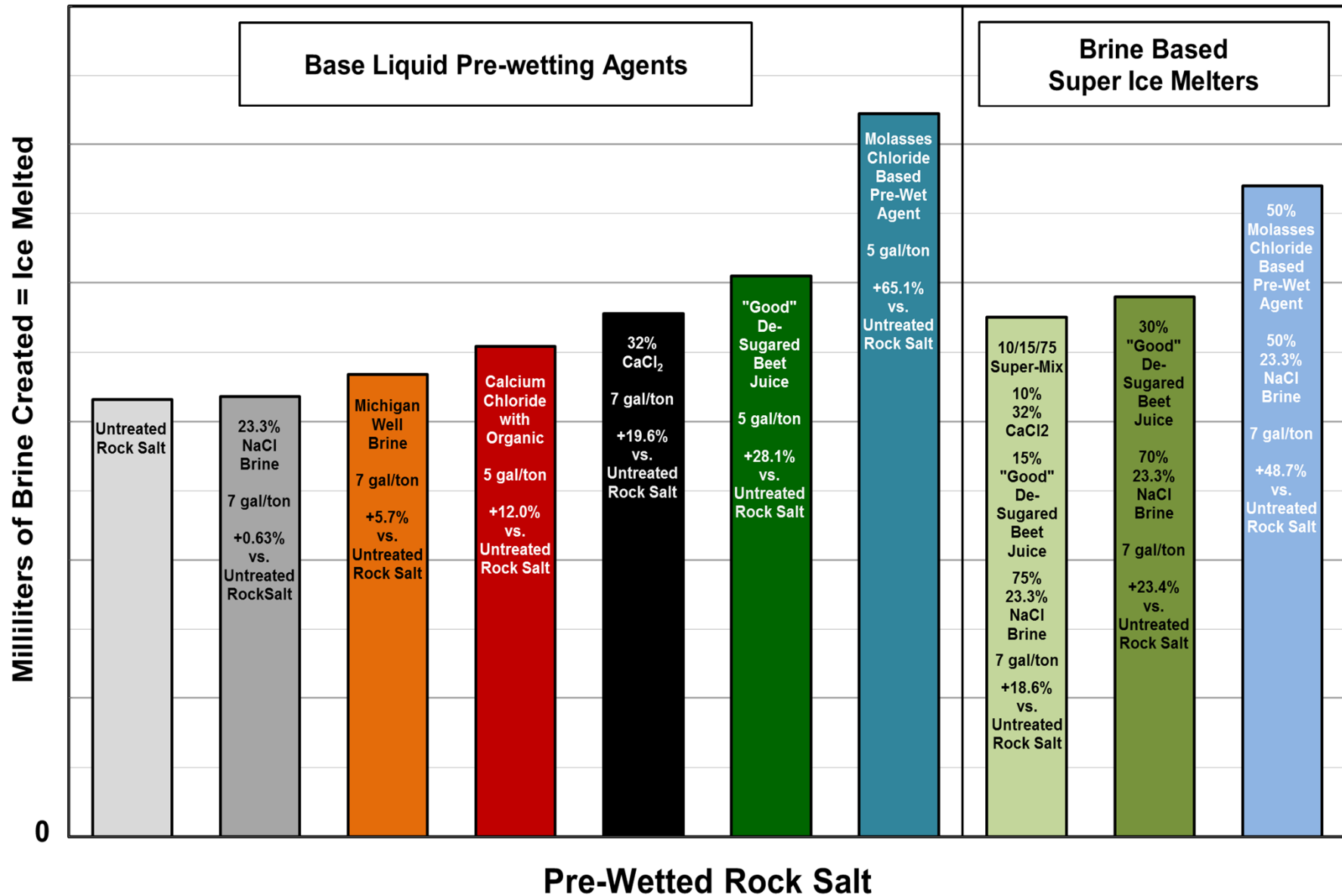
Advanced Laboratories, Inc. Salt Lake City, UT - Margin of Error 3.6%



Pre-Wetted Rock Salt - Ice Melting Performance Comparison @ 25°F

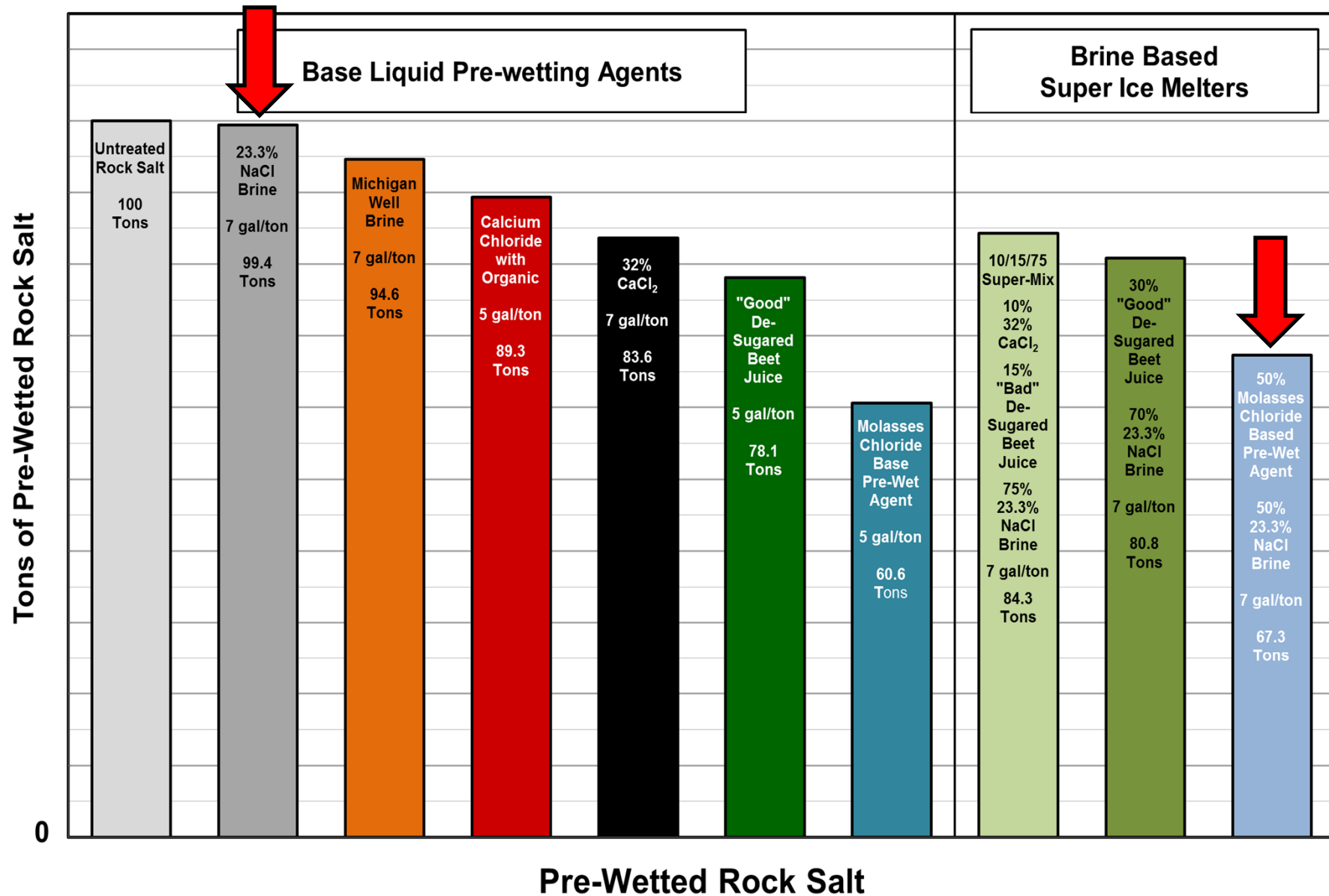
Modified SHRP H-205.1 Ice Melt Capacity Solids

Advanced Laboratories, Inc. Salt Lake City, UT - Margin of Error 3.6%



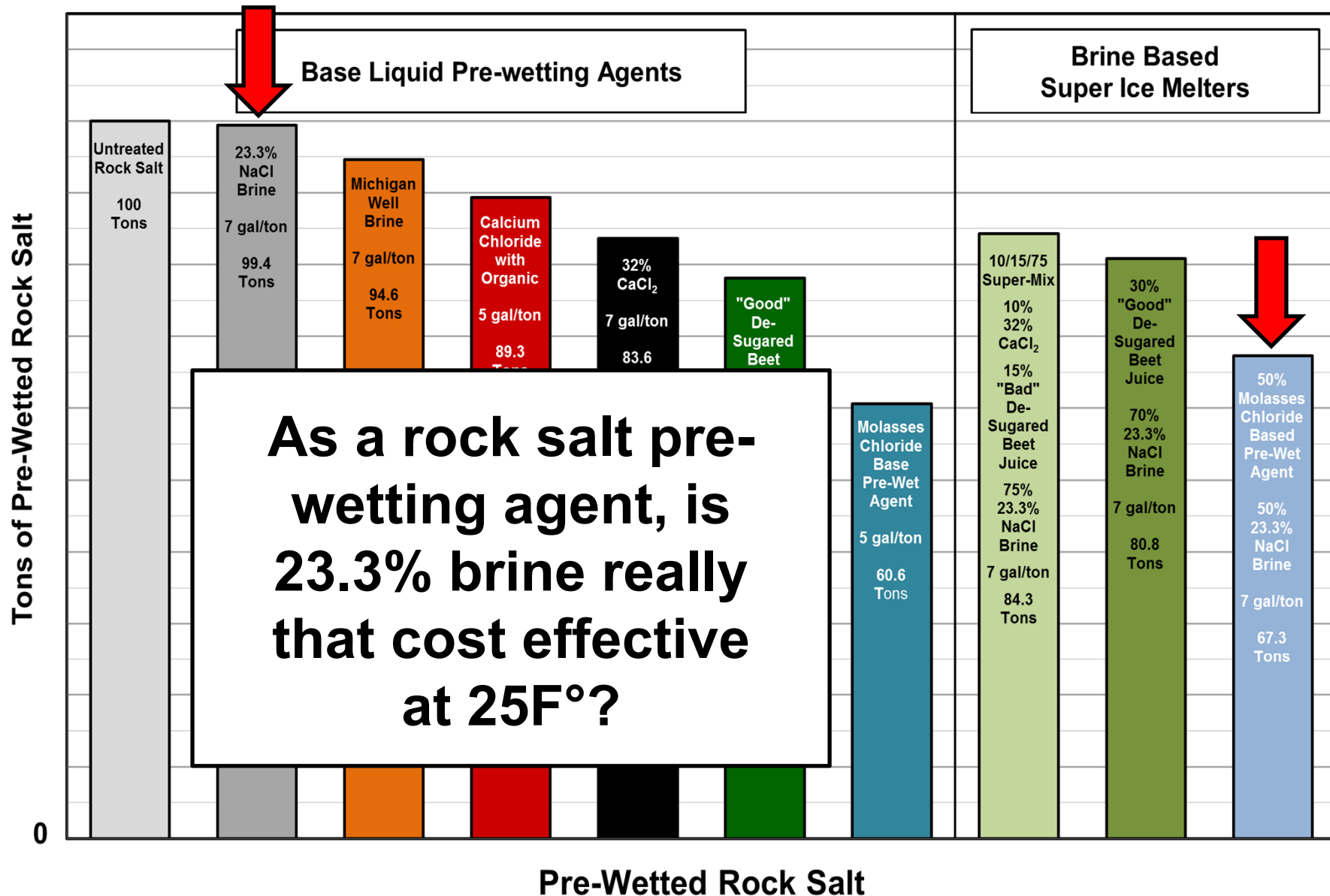
Amount Of Pre-Wetted Rock Salt It Takes To Melt The Same Amount Of Ice As 100 Tons Of Untreated Rock Salt @ 25°F

Modified SHRP H-205.1 Ice Melt Capacity Solids
Advanced Laboratories, Inc. Salt Lake City, UT - Margin of Error 3.6%



Amount Of Pre-Wetted Rock Salt It Takes To Melt The Same Amount Of Ice As 100 Tons Of Untreated Rock Salt @ 25°F

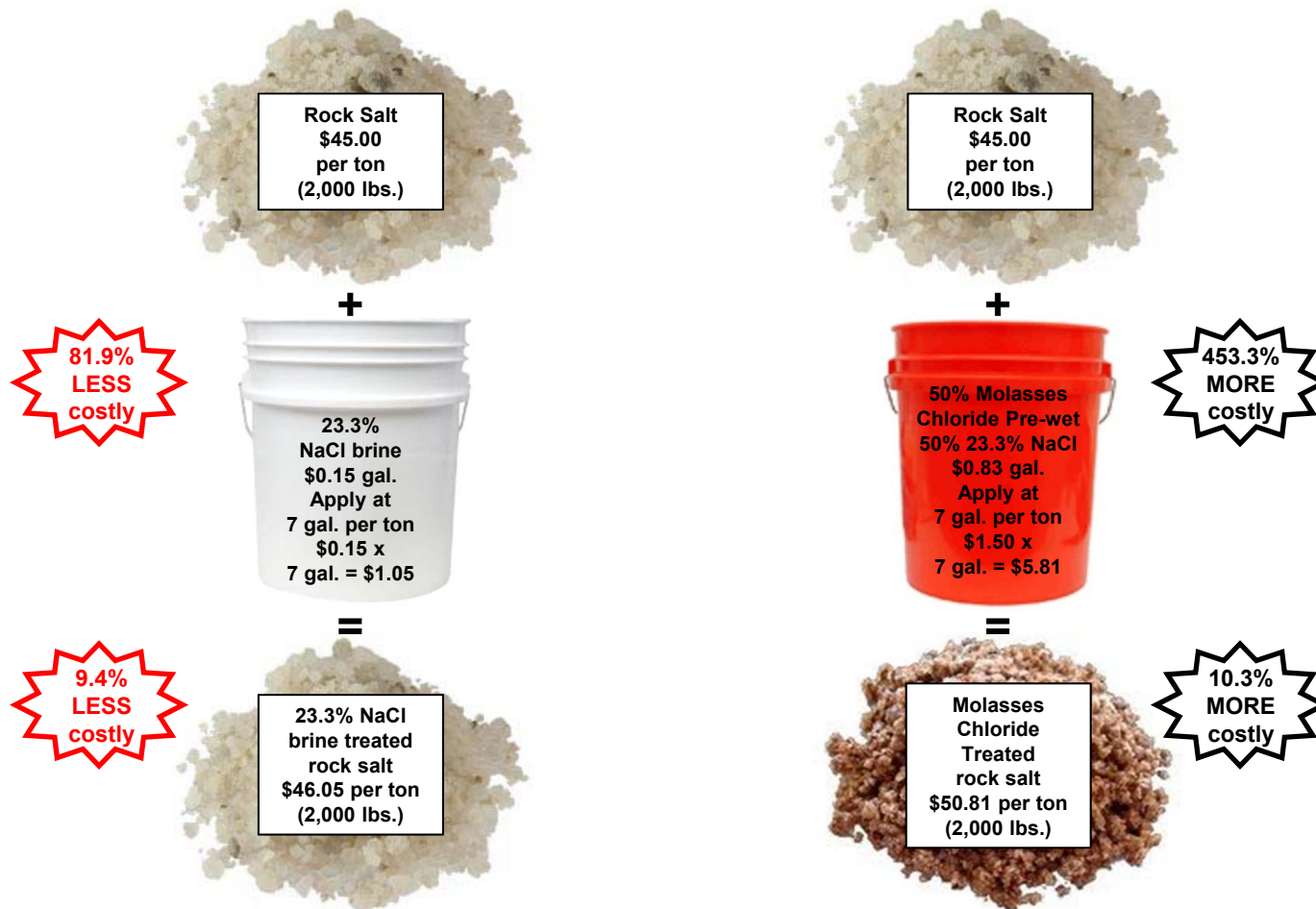
Modified SHRP H-205.1 Ice Melt Capacity Solids
Advanced Laboratories, Inc. Salt Lake City, UT - Margin of Error 3.6%



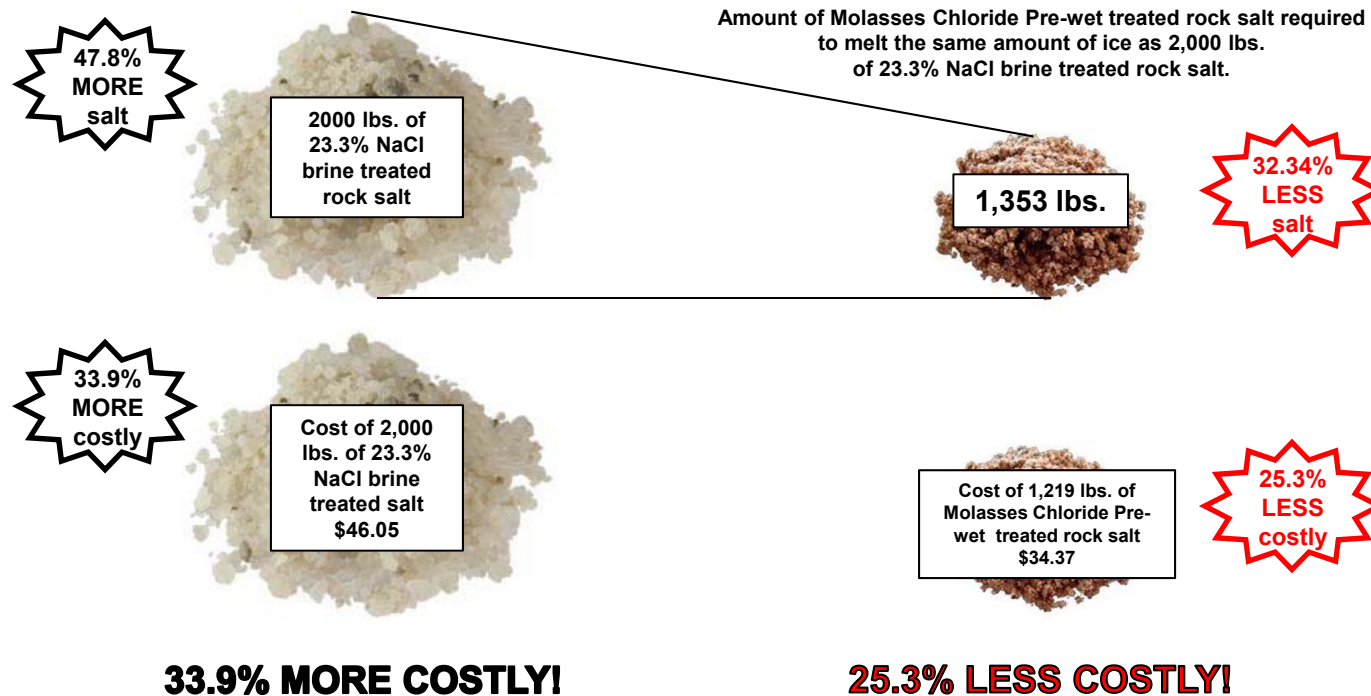
Low priced deicers are very attractive, until you consider performance and do some math.

23.3% NaCl brine

**vs. 50/50 Molasses/Chloride
NaCl Brine Pre-wet**



Low priced deicers are very attractive, until you consider performance and do some math.



The initial price of your pre-wetting agent means virtually nothing when it comes to saving money. The performance of your salt means everything!

Low priced deicers are very attractive, until you
and do some math.

As a rock salt pre-
wetting agent, is
**23.3% brine really
that cost effective
at 25F°?**

Amount of Molasses Chloride Pre-wet treated rock salt required
to melt the same amount of ice as 2,000 lbs.
of 23.3% NaCl brine treated rock salt.

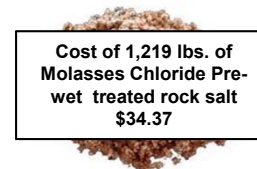


**32.34%
LESS
salt**

**33.9%
MORE
costly**



33.9% MORE COSTLY!



**25.3%
LESS
costly**

25.3% LESS COSTLY!

The initial price of your pre-wetting agent means
virtually nothing when it comes to saving money.
The performance of your salt means everything!

23.3% Sodium Chloride Brine Cost Calculator

As a salt pre-wetting agent, how much does
23.3% sodium chloride brine really cost per gallon?

23.3% NaCl Brine Treated Salt

Tons of 23.3% NaCl brine treated salt used per season	1,000	
Cost of salt per ton	\$45.00	
Cost of salt per season when using 23.3% NaCl brine as a pre-wetting agent	\$45,000.00	\$45,000.00
Gallons of 23.3% NaCl brine required @ 7 gallon per ton	7,000	
Cost of 23.3% NaCl brine per gallon	\$0.15	
Cost of 23.3% NaCl brine per season	\$1,050.00	\$1,050.00
Total material cost when using 23.3% NaCl brine as a pre-wetting agent		\$46,050.00

50% Molasses/Chloride / 50% 23.3% NaCl Brine Treated Salt

Tons of 50/50 treated salt needed to melt same amount of ice	677.0	
Cost of salt per ton	\$45.00	
Cost of salt per season when using 50/50 as a pre-wetting agent	\$30,465.00	\$30,465.00
Gallons of 50/50 pre-wetting agent required @ 7 gal. per ton	4,739	
Cost of the 50/50 pre-wetting agent per gallon	\$0.83	
Cost of the 50/50 pre-wetting agent per season	\$3,933.37	\$3,933.37
Total material cost when using the 50/50 pre-wetting agent		\$34,398.37

Total savings by using the 50/50 pre-wetting agent not 23.3% brine **\$11,651.63**

As a salt pre-wetting agent, 23.3% NaCl brine will actually cost about
\$1.66 per gal. in lost savings, when compared to using the 50/50 Pre-wet.

23.3% Sodium Chloride Brine Cost Calculator

As a salt pre-wetting agent, how much does
23.3% sodium chloride brine really cost per gallon?

23.3% NaCl Brine Treated Salt

Tons of 23.3% NaCl brine treated salt used per season	1,000	
Cost of salt per ton	\$45.00	
Cost of salt per season when using 23.3% NaCl brine as a pre-wetting agent	\$45,000.00	\$45,000.00
Gallons of 23.3% NaCl brine required @ 7 gallon per ton	7,000	
Cost of 23.3% NaCl brine per gallon	\$0.15	
Cost of 23.3% NaCl brine per season	\$1,050.00	\$1,050.00
Total material cost when using 23.3% NaCl brine as a pre-wetting agent		\$46,050.00

As a rock salt pre-
wetting agent, is
23.3% brine really
that cost effective
at 25F°?

50/50 NaCl Brine Treated Salt

Tons of 50/50 NaCl brine treated salt used per season	677.0	
Cost of salt per ton	\$45.00	
Cost of salt per season when using 50/50 NaCl brine as a pre-wetting agent	\$30,465.00	\$30,465.00
Gallons of 50/50 NaCl brine required @ 7 gallon per ton	4,739	
Cost of 50/50 NaCl brine per gallon	\$0.83	
Cost of 50/50 NaCl brine per season	\$3,933.37	\$3,933.37
Total material cost when using 50/50 NaCl brine as a pre-wetting agent		\$34,398.37
Total cost when using 23.3% brine		\$11,651.63

As a salt pre-wetting agent, 23.3% NaCl brine will actually cost about
\$1.66 per gal. in lost savings, when compared to using the 50/50 Pre-wet.



In Closing

REMEMBER

- 1. The better your salt or brine perform, the less of them you need to melt the same amount of ice.**
- 2. The price of your salt pre-wetting agent has little to do with saving money.**
- 3. Figuring out how well a deicer is going to perform before buying it isn't difficult.**
- 4. You can't be serious about saving money until you get serious about deicer performance.**

The background of the slide is a faded photograph of a construction site. A backhoe loader is visible, with its rear facing the camera. A large orange sign with the words 'KEEP BACK' in white capital letters is attached to the back of the machine. The scene is outdoors, and the overall image has a light, semi-transparent overlay to make the text stand out.

Question & Answer Session

4 questions \$20.00 each

A background image showing two hands shaking, symbolizing agreement or partnership. The hands are positioned diagonally across the frame, with the fingers interlocked.

K-TECH

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