



# Ice Melter Survival Kit

Everything you need to know.



## How Ice Melters Work

There are **two ways to melt ice/snow** turning it into a brine (liquid solution), ultimately breaking the bond between the ice/snow and the surface area...



**Endothermic** - Lowers the Freezing Point of the Surface Area (e.g. Rock Salt)



**Exothermic** - Reacts with the Moisture in the Ice/Snow to Create Heat (e.g. Calcium Chloride)





## Principles of Ice Melter

- Enhances **Safe Passage** for Customers.
- Provides for **Property Preservation**.
- Protecting Employee Health and Safety.
- Reduce the likelihood of **Costly Slip and Fall Claims**.

## Applying Ice Melters

- **Too little Ice Melter** will not control ice and snow as intended.
- **Too much Ice Melter** is wasteful and potentially harmful to the environment, resulting in burnt vegetation and corroded hardscapes.
- Some products can be toxic to both vegetation and applicator.
- Always consult the Material Safety Data Sheet (MSDS) for the product and use only as directed.



## Most Common Forms of Ice Melter



**Rock Salt**



**Calcium Chloride**



**Magnesium Chloride**



**Potassium Chloride**



**Urea**



**Calcium Magnesium Acetate (CMA)**



**Value Added Blends**



## Rock Salt (Endothermic)

### Most Commonly Used



#### Advantages:

Abundant

Readily Available



#### Disadvantages:

Corrosive

White in Color

Environmentally Damaging





## Calcium Chloride (Exothermic)



### Advantages:

- Generates Heat
- Fast Acting
- Melts to a Low Temperature  $-25^{\circ}\text{F}$



### Disadvantages:

- Highly Corrosive
- Can Leave an Oily Residue if Over Applied
- White in Color, can be Dusty
- Hygroscopic





# Calcium Chloride — MSDS

## SECTION 7: PREVENTATIVE MEASURES

### Personal Protective Equipment Required

**Respiratory Protection:** For dusty/misty conditions, wear NIOSH-approved dust/mist respirator.

**Eyes and Face:** For dusty/misty conditions, or handling solutions if there is probability of eye contact, wear chemical safety goggles and hard hat. Under these conditions do not wear contact lenses.

**Hands, Arms, and Body:** As a minimum, wear long sleeve shirt, trousers, rubber boots and gloves for routine product use. Cotton gloves permitted for dry product, impervious gloves when using solutions.

**Specific Engineering Controls Required:** Provide general and/or local exhaust ventilation to maintain dust or fume levels below exposure limits. Eye wash facility should be provided in storage and general work area.

**Spill/Leak Procedures:** Shovel up dry chemical and place in metal drum with cover. Cautiously spray residue with plenty of water. Avoid waterways.

**Waste Disposal:** Consistent with requirements of local waste disposal authorities.

**Storage Needs:** Cool, dry area. Prolonged storage may cause product to cake and become wet from atmospheric moisture.

**Handling Procedures and Equipment:** Avoid contact with eyes, skin or clothing. Avoid breathing dust.

## SECTION 8: FIRST AID MEASURES

**EYE CONTACT:** Immediately flush eyes with running water for at least 15 minutes. Get medical attention.

**SKIN CONTACT:** Remove contaminated clothing. Wash with soap and water. Seek medical attention if irritation persists.

**INGESTION:** If conscious, immediately give 2-4 glasses of water. Induce vomiting under medical supervision.

**INHALATION:** Promptly remove to fresh air. Get medical attention.

## Magnesium Chloride (Exothermic)



### Advantages:

Similar to Calcium

Fast Acting

Melts to a Low Temperature



### Disadvantages:

White in Color

Creates an Oily Residue

Hygroscopic-Draws Moisture

Can be Slippery if Over-applied





## Potassium Chloride (Endothermic)



### Advantages:

Melts to  $-13^{\circ}\text{F}$

Extended Melt Time



### Disadvantages:

White in Color

More Costly than Rock Salt

If Over-applied can be Harmful  
to Vegetation





## Urea (Endothermic)



### Advantages:

- Soil Supporting Characteristics
- Fertilizer like Properties
- Less Corrosive than Rock Salt



### Disadvantages:

- Slow to React
- Less Effective in Cold Temperatures
- White in Color





# Calcium Magnesium Acetate

## (Endothermic) CMA



### Advantages:

- Environmentally Friendly Alternative
- Melts to  $-18^{\circ}\text{F}$
- Soil Supporting Compound
- Biodegradable
- Non-Damaging to Concrete\*
- Reduced Freeze/Thaw Cycles



### Disadvantages:

- Higher Cost Per Bag
- White in Color
- \*When used as directed





## **Key Factors in Application**

- **Temperature**
- **Humidity Level & Moisture Content**
- **Existing Site Conditions**
- **Desired End Result**
- **Time of Day**
- **Sunlight**
- **Traffic**
- **Weather Forecast**



## Melting Speed and Extended Melting

- Two additional factors used to compare Ice Melter performance are **Melting Speed** (or rate of melting) and **Extended Melting**.
- **Melting Speed** is limited by the nature of the ingredients used and environmental conditions.
- Ice Melters that provide an **Extended Melting** action remove a higher volume of ice and snow and are usually more economical. Calcium Magnesium Acetate (CMA) blends provide this extended melting action.





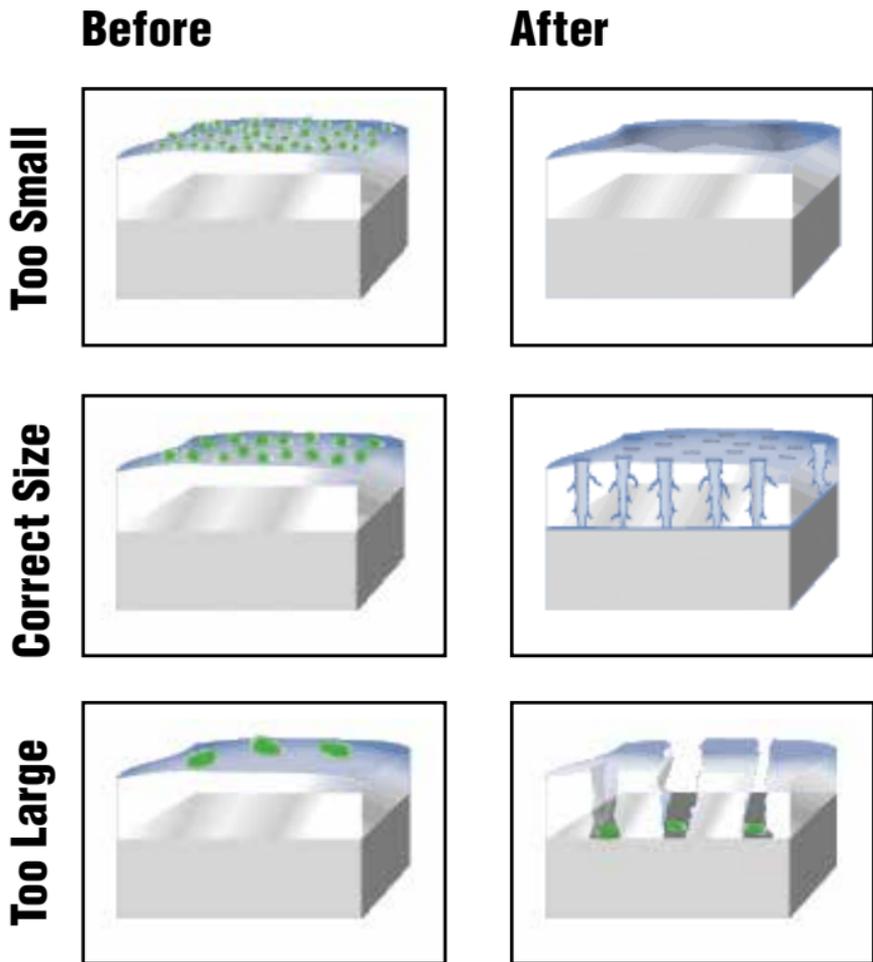
## Ice Melter Granular Size

Small granules melt quickly, and a large amount of them can get the melting process off to a fast start.

Larger particles have a comparatively slower melting action. They will likely penetrate through an ice layer, but may not be completely dissolved into an underlying brine layer. The unused materials can reduce melting efficiency and increase cost.

The most effective Ice Melters use consistent, medium sized granules which can bore through the surface and maximize brine formation. This breaks the ice to surface bond, allowing easy removal of the remaining ice.

## Size Does Matter





## When to Apply Ice Melters

### De-Icing -

Application of Ice Melter to melt existing snow and ice.



### Anti-Icing -

Proactive application of Ice Melter to surface prior to a storm.



By applying an Ice Melter before precipitation begins, you can prevent ice from bonding to the surface area. This allows you to simply shovel or plow.



## Application Guidelines

Here are some guidelines for applying Ice Melter after precipitation has fallen:

- **Wet/Heavy Snow** - Apply as soon as wet/heavy snow begins falling to prevent it from bonding. When more than two inches accumulate, shovel excess snow and reapply if necessary.
- **Large Accumulations Of Snow** - Anytime the snowfall amounts to more than two inches, plow or shovel first. Then use an Ice Melter to melt the stubborn layer of ice or hard packed snow that remains.
- **Dry Powdery Snow** - Can be shoveled or swept, and may not require the use of an Ice Melter.
- **Sleet/Freezing Rain** - Apply an Ice Melter early to prevent ice build up.

**Precautions:** Apply at labeled rates. Use a spreader or application unit. Spread evenly. Do not over-apply, especially around vegetation, metals and concrete.



## Ice Melters and Concrete

Most concrete damage is a result of the natural effect of freeze/thaw cycles, not a chemical attack by an Ice Melter.

Moisture seeps into the surface pores and cracks in the concrete, and as it changes to ice, expands and puts pressure on surrounding surfaces.

Ice Melters are not recommended on concrete less than one year old.



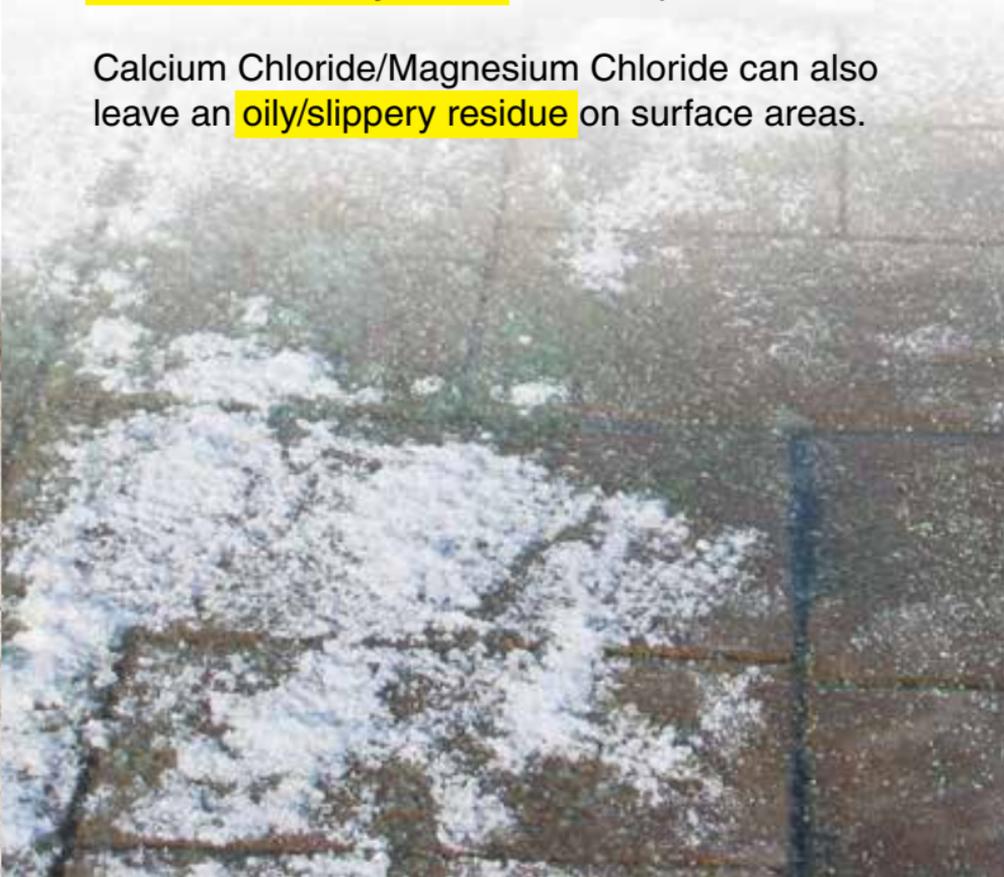


## Ice Melter Tracking and Residue

Residues from Ice Melters are greatly increased with over application.

When Potassium Chlorides are applied, a dry white residue may be left after evaporation.

Calcium Chloride/Magnesium Chloride can also leave an oily/slippery residue on surface areas.





## Children And Pets

Ice Melters are fairly safe to pets, but a few precautions should be taken to protect pets, floors, and carpets.

Animals like to eat salts, it is a good idea to prevent pets from licking Ice Melter granules. Keep them indoors while Ice Melter is applied.

Caution should be used when applying Ice Melters in school yards and day care sites as children tend to eat and play with the snow.





## Hidden Cost Associated With Ice Melters

### Beyond the Price Per Bag

- Sod Damage
- Shrub Replacements
- Concrete Spalling or Cracking
- Damage to Carpets
- Slip and Fall Claims
- Application Rates
- Protective Clothing

## Application Rates



**Too Little**



**Just the right amount**



**Too Much**

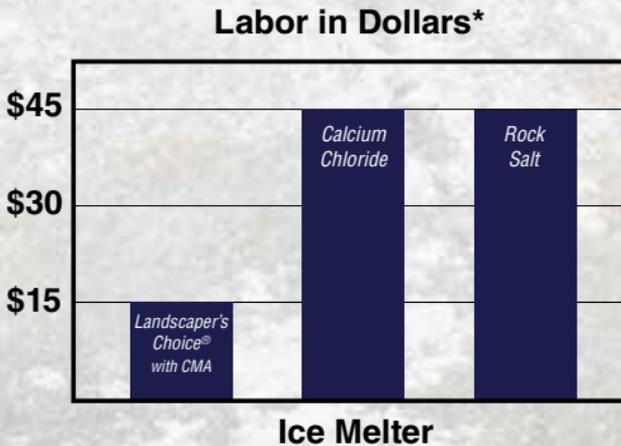
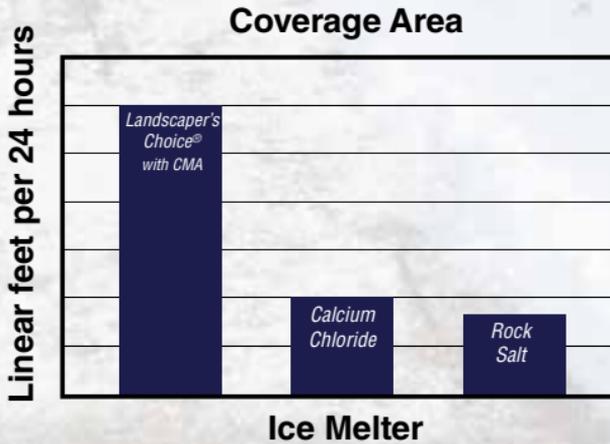


**Way Too Much**

For best results, apply Ice Melter using a push type or hand held spreader. Landscaper's Choice® with CMA is very effective, so a small amount will go a long way! Depending on the amount of ice and snow present, sprinkle the Ice Melter on ice and snow at the rate of 1 lb. to 4.5 lb. per 540 ft<sup>2</sup>. Shovel off excess slush and water, and then reapply to heavy areas of ice. Do not overspread. Apply evenly and avoid piling.



## Three Times the Value



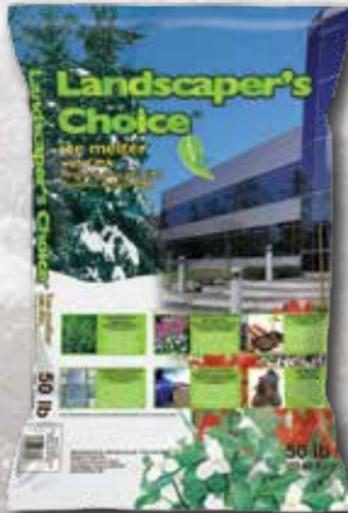
\*Typical hourly wage is \$15 per hour. One application of Landscaper's Choice<sup>®</sup> with CMA may cost \$15, versus three applications of other products to do the same job. Landscaper's Choice<sup>®</sup> with CMA lasts 3 times as long!



## Landscaper's Choice®

- Consistent and Even Granulation for Spreading
- Visually Measured
- Contains CMA (Calcium Magnesium Acetate)
- Highly Visible **Green** Indicator
- Safer to Handle\*
- Pre-Application Capabilities
- Corrosion Inhibitors

\*When used as directed





## Ice Cutter®

- Premium Non-Calcium Chloride Blend
- Non-Tracking
- Visually Measured
- Highly Visible **Green** Indicator
- Extended Melting for Added Protection and Economy
- Resists Re-freezing





## Regard® Eco-Melt

- Environmentally Formulated
- Melts Snow and Ice Faster and at Lower Temperatures
- Highly Visible **Blue** Indicator
- Less Harmful to Vegetation\*
- Melts Ice Down to -11°F (-24°C)

\*When used as directed





## Prime Source™

- Non-Hygroscopic (Will Not Harden)
- Blended Formula for Extended Melting
- Friendly, Non-Toxic Formula\*
- Highly Visible **Blue** Indicator
- Safer to Handle\*

\*When used as directed





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