Sensible Salt

Training

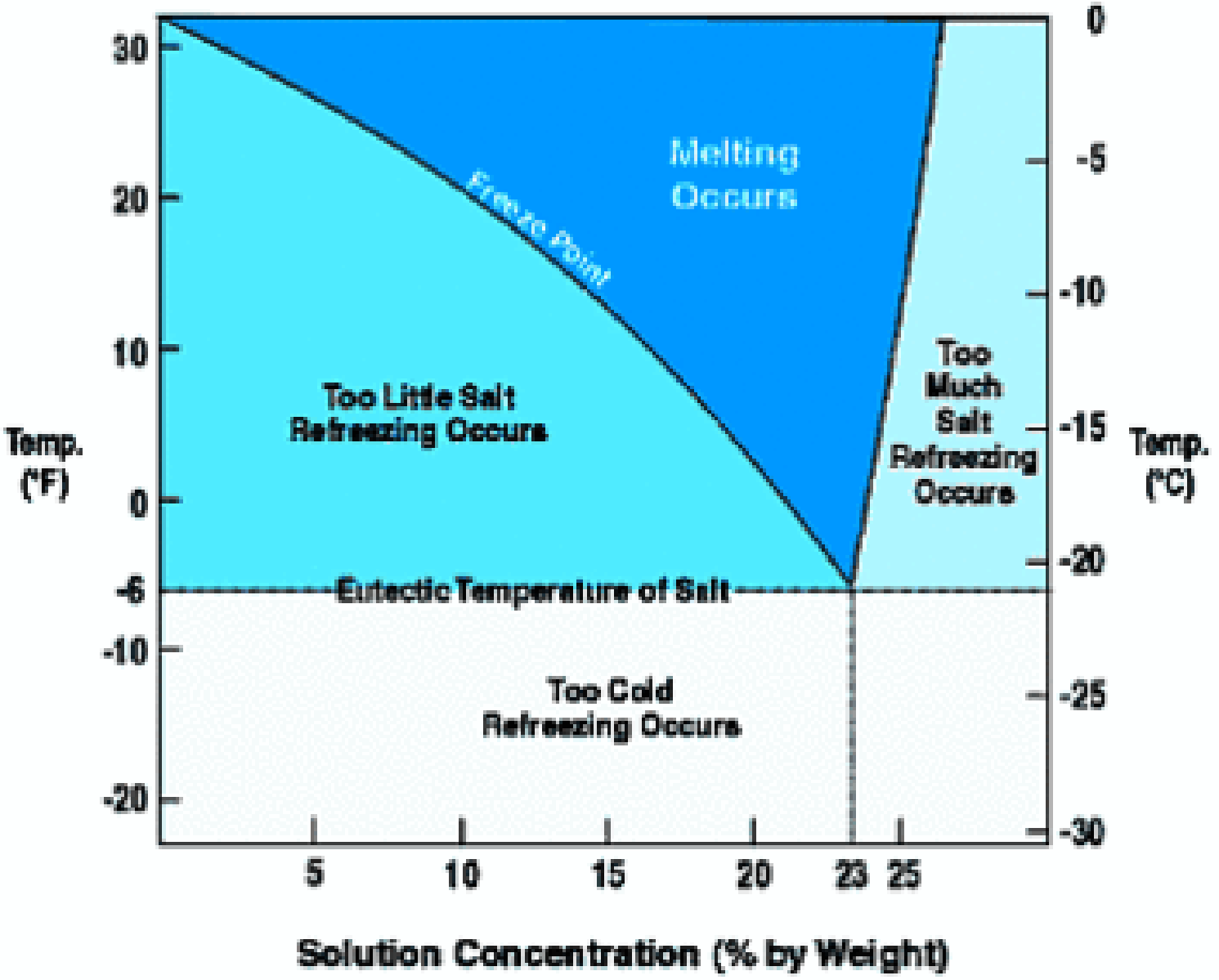
Winter Road Safety

- Winter storms endanger roadway users and paralyze economic activity. Sensible Salting keeps roads open and safe.
- Salt is used on highways in two primary strategies:
  - traditional deicing strategy accomplished by applying dry salt or prewet salt to remove snow and ice bonded to the roadway surface
  - anti-icing, the application of salt prior to the formation of a bond between ice and the roadway, usually by spraying nearly-saturated brine on the dry pavement or applying a prewet solid

How does road salt work?

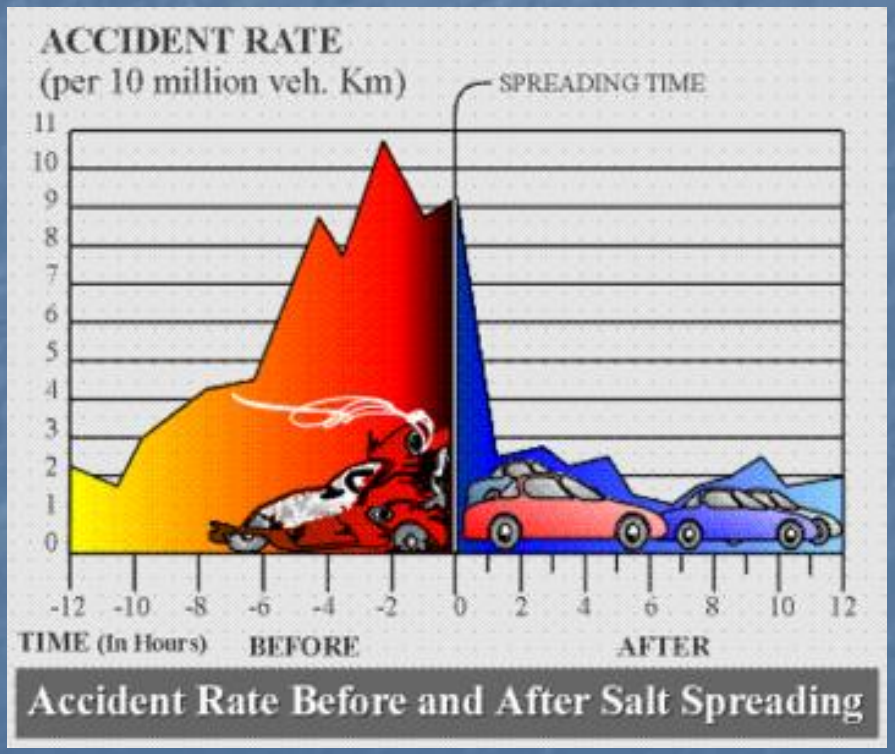
- Even though salt may be applied dry it does not begin its snow fighting job until it dissolves into brine
- Salt applied as a liquid or prewet solid can begin to act immediately lowering the freezing point of water
- On a pavement where the temperature is 30°F (-1° C), one pound of salt melts 46.3 pounds of ice. One inch of ice on one lane-mile of road would weigh 70 tons. To melt that much ice would take 17 tons of salt

Phase Diagram for Salt



Benefits of Road Salt

- Applying salt immediately and dramatically reduces traffic crashes
- Applying salt also keeps roads available to offer the service we expected when we paid our gas tax to support their construction and maintenance



Accident Rate Before and After Salt Spreading

Preventing unsafe winter roads (anti-icing)

- In snow fighting, prevention means anti-icing.
- Anti-icing measures take place before snow falls and ice forms on the roadway
- Anti-icing has many advantages:
  - The roadway surface is never "lost." Snowfighters respond pro-actively
  - Anti-icing returns road surfaces to normal faster, resulting in fewer accidents and delays
  - Using a liquid ice-melter jumpstarts the melting process because salt needs moisture to be effective and only in freezing rain would an anti-icing application not be either prewet or an entirely liquid application.
  - Brine doesn't bounce or blow off the road surface so material is used more efficiently
  - If the storm is delayed, salt residue remains on the road ready to begin work when precipitation begins
  - Crews can cover more territory by beginning treatment in advance of a storm
  - Increased efficiency results in use of less salt, minimizing environmental concerns

Proper salt storage

- Salt never loses its capability to melt snow and ice no matter how long it is stored
- Salt, however, can be lost to precipitation
- Storage piles, whether large or small, should never be left exposed to rain or snow
- A permanent under-roof storage facility is best for protecting salt
- Storage in a roofed enclosure will:
  - Prevent formation of lumpy salt that is difficult to handle with loaders and to move through spreaders
  - Eliminate the possibility of contaminating streams and wells with salt runoff
  - Eliminate salt loss through dissolving and runoff