

# Know Your Snow

*There are roughly five major kinds of storm conditions and all of the maintenance force should know how to combat each type*

Snow occurs when water vapor in an air mass is cooled below freezing. The density of snow varies. Some storms produce "wet" snow, others "dry" snow. Wet or heavy snow can often be plowed away. Time is of the essence. Use of weather forecasting services allows for crew readiness before storms. Salt should be applied as soon as the precipitate begins to accumulate.

Winter storms produce a number of hazardous conditions other than snow. Even without rain, ice may occur when moist air contacts a cold surface, particularly on bridge decks. Rain may freeze as it falls on pavement. Frozen rain falls as sleet or hail, which may stick to pavements.

There are roughly five major kinds of storms (the conditions are listed below). Each requires a somewhat different approach. All of the maintenance force should know these basic kinds of storms and how to combat them.

Most storms occur under Conditions 1, 2 or 3. But variations in temperature, precipitation, pavement condition or other factors are common. You must depend upon well-trained maintenance crews to use initiative and imagination in coping with unforeseen problems.

**Keep An Eye On The Weather.** You cannot prepare for a storm unless you know when it will arrive, how long it will last and what kind of storm it will be. Arrange with the U.S. Weather Bureau, a local airport weather station or a private forecasting service to get complete detailed reports during winter. Some maintenance departments hire a private forecaster to be sure of a balanced and more localized weather picture.

If late afternoon reports indicate the possibility of overnight snowfall, ready equipment by attaching snowplows and spreaders before the workday ends. If weather forecasts indicate it, you may need to hold a certain portion of your work force to start fighting the storm when it comes. If the forecast indicates snow during the night, you should send the work force to get some rest and alert them that they may be called out during the night. Arrange with the highway patrol, local police, sheriff's department or your weather service to notify key personnel of storms that develop late at night. Make someone responsible for relaying the alert to the entire maintenance

force if need be.

Equipment maintenance outposts with wind gauges and outside thermometers so crew can note changes in the weather.

## Storm Fighting Guidelines

The following is a guideline to combat various types of storms.

Local conditions and policies will be the final determining factor.

### Condition 1

- Temperature - Near 30
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet

If snow or sleet, apply salt at 500 lbs. per two-lane mile. If snow or sleet continues and accumulates, plow and salt simultaneously. If freezing rain, apply salt at 200 lbs. per two-lane mile. If rain continues to freeze, reapply salt at 200 lbs. per two-lane mile.

### Condition 2

- Temperature - Below 30 or falling
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet or sticky

Apply salt at 300-800 lbs. per two-lane mile, depending on accumulation rate. As snowfall continues to accumulate plow and repeat salt application. If freezing rain, apply salt at 200-400 lbs. per two-lane mile.

### Condition 3

- Temperature - Below 20 and falling
- Precipitation - Dry Snow
- Road Surface - Dry

Plow as soon as possible. Do not apply salt. Continue to plow and patrol to check for wet, packed or icy spots; treat them with heavy salt applications.

### Condition 4

- Temperature - Below 20
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet

Apply salt at 600-800 lbs. per two-lane mile, as required. If snow or sleet continues and accumulates, plow and salt simultaneously. If temperature starts to rise, apply salt at 500-600 lbs. per two-lane mile, wait for salt to react before plowing. Continue

until safe pavement is obtained.

### Condition 5

- Temperature - Below 10
- Precipitation - Snow or freezing rain
- Road Surface - Accumulation of packed snow or ice

Apply salt at a rate of 800 lbs. per two-lane mile or salt-treated abrasives at rate of 1500 to 2000 lbs. per two-lane mile. When snow or ice becomes mealy or slushy, plow. Repeat application and plowing as necessary.

*\*Note: The light, 200-lb. application called for in Conditions 1 and 2 must be repeated often for the duration of the condition.*

**The above article was taken from *The Snowfighter's Handbook*, a Salt Institute publication. ■**

## Pounds of Ice Melted Per Pound of Salt

Temperature Degrees F.	One Pound of Sodium Chloride (Salt)
30	46.3 lbs. of ice
25	14.4 lbs. of ice
20	8.6 lbs. of ice
15	6.3 lbs. of ice
10	4.9 lbs. of ice
5	4.1 lbs. of ice
0	3.7 lbs. of ice
-6	3.2 lbs. of ice

## Coverage of One Cubic Yard of Salt

Rate of Application Per Two-Lane Mile	No. of Two-Lane Miles Covered
800 lbs.	2.50
700 lbs.	2.75
600 lbs.	3.00
500 lbs.	4.00
400 lbs.	5.00
300 lbs.	6.00
200 lbs.	10.00

*\*Note: Salt meeting ASTM Specification D632 weighs approximately 80 lbs. per cubic foot.*