Road-Weather Conditions Tuned to Correspond with:

*Standard Treatment Prescriptions (FHWA Rules of Practice) & Snow and Ice Cooperative Program (SICOP) Training Guidance*

<table>
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<tr>
<th>TEMPERATURE RANGE AND TREND</th>
<th>INITIAL OPERATION</th>
<th>SUBSEQUENT OPERATIONS</th>
<th>COMMENTS</th>
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<td>PAVEMENT SURFACE AT TIME OF INITIAL</td>
<td>DRY CHEMICAL SPREAD RATE, kg/lane-km</td>
<td>DRY CHEMICAL SPREAD RATE, kg/lane-km</td>
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<td>MAINTENANCE ACTION</td>
<td>LIQUID</td>
<td>SOLID OR PREWETTED SOLID</td>
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</table>
| Above 0°C (32°F), steady or rising | Dry, wet, slush, or light snow cover | None, see comments | None, see comments | 1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below.  
2) Treat icy patches if needed with chemical at 28 kg/lane-km (60 lb/lane-mi); plow if needed. |
| Above 0°C (32°F), 0°C (32°F) or below is imminent; ALGO -7 to 0°C (20 to 32°F), remaining in range | Dry | Apply liquid or prewetted solid chemical | 28 (100) | 28 (100) | Plow as needed; apply liquid or solid chemical when needed. |
| -10 to -7°C (15 to 20°F), remaining in range | Wet, slush, or light snow cover | Apply liquid or solid chemical | 28 (100) | 28 (100) | 1) Applications will need to be more frequent at lower temperatures and higher snowfall rates.  
2) It is not advisable to apply a liquid chemical at the indicated spread rate when the pavement temperature drops below -5°C (23°F).  
3) Do not apply liquid chemical onto heavy snow accumulation or packed snow. |
| Below -10°C (15°F), steady or falling | Dry or light snow cover | Apply prewetted solid chemical | 55 (200) | 55 (200) | Plow as needed; apply prewetted solid chemical when needed. |

Notes: CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to prevent deteriorating conditions or development of packed and banded snow. (2) Apply chemical ahead of traffic rush periods occurring during storm. PLOWING. If needed, plow before chemical applications so that excess snow, slush, or ice is removed and pavement is wet, slushy, or lightly snow covered when treated.
Automating Recommended Practices

• Challenge to integrate with dynamic forecasts
• Allow local tuning that fits within rules of practice
• Make system “flexible” for future development
• Examining existing automated snow maintenance recommendation algorithms:
  – Canadian implementation of FHWA “rules”
  – Swedish fuzzy logic based system
Integrating Forecasts to Optimize Treatment

Chemical Treatment (lbs/2-lane mile) vs. Road Surface Temperature