

Salt And Highway Deicing

Q. The Salt Institute's Storage Handbook gives some good ideas on storage but it doesn't indicate how much salt is lost if not covered. What is the loss if salt is left exposed to rain and elements?

A. There may be losses of salt from an uncovered stockpile from rain and, to a much less extent from wind. Rain losses are estimated at 1/4 percent per annual inch of precipitation. To my knowledge, wind losses have never been calculated, but should be considered very small because once exposed dust particles are blown away no more will be generated until the face of the stockpile is disturbed. A covered stockpile not only prevents losses, but provides a dry, free flowing product.

Q. At a recent conference, the question was asked - what is the single worst problem you have to deal with in snow and ice control operations?

A. Many would agree that the public does not give you the opportunity to do your job on a timely basis without complaint. They will not give you ample room to plow, won't keep streets clear of parked cars and, of course, question why you didn't plow their street sooner.

We know it is impossible to do everything at once and sometimes there are not enough funds to do all the public wants, regardless of time. This is why it's so important to have a public relations program to inform the public of what should be expected and when.

People should also be advised that fluctuating storm conditions may require temporary adjustments to general policy. There are too many variables in snow and ice control to have a policy or guideline that universally guarantees specifics. But having general policy guidelines is a major step toward getting the job done effectively, efficiently, safely, and within the boundaries of public expectations.

Q. Is the gradation of highway deicing salt from all sources the same?

A. Yes, all Salt Institute member companies produce rock and solar salt for highway use to ASTM-D632-84 specification. The specification was re-approved in 1989 by ASTM without change. In recent years, several companies have produced "enhanced" salt products which vary on the basis of proprietary additives.

Q. Why do you use the 500 pounds per-two lane mile figure so often? We've

found that we have to adjust to suit the storm and sometimes it may require more or less salt.

A. Your point is well taken, there must be flexibility in the amount of salt spread for varying storm conditions. That's the problem, the storm conditions change not only from storm to storm but during a single storm.

The 500 pounds per two-lane mile is a good starting point for the so called "average" storm, yet we all know there is no average storm. It has been estimated that there are 66,666 different storm conditions.

Start with the least amount of salt you feel is reasonable to provide safe driving as quickly as possible and adjust as necessary to provide continuing safety. The quicker you reach bare pavement and maintain it, the higher the level of safety and usually the less costly - maintenance as well as accidents.

Q. When plowing and spreading in tandem, should both trucks be spreading salt?

A. The objective should be to clear the road as quickly and effectively as possible but not to duplicate effort or waste salt. The lead plow should spread salt only on the lane it clears as with each successive plow. Salt should not be spread across pavement where a following plow will clear snow and just-spread salt. If only two plows are operating, it may be possible for the follow-up plow to handle all spreading. They can change positions when one truck runs out of salt.

Q. What's new in alternatives to salt for highway deicing?

A. As always these days, calcium magnesium acetate (CMA) is in the forefront and continues to be tested by several agencies. Generally, results indicate that CMA is slower to react, more CMA is required and the price continues to increase. The long-term affects on the environment of CMA and NaFo (sodium formate) are not yet known. Although they appear to be less corrosive, we'll have to wait for the results on other long-term environmental effects. Efforts are ongoing to produce CMA more inexpensively from corn-based acetic acid rather than natural gas as all CMA is currently being produced.

The City of Ottawa, Ontario has conducted tests with CMA, salt, and sodium formate (NaFo) and would like to conduct further area-wide NaFo tests. NaFo is a relative new comer to the market but according to Ottawa it is a viable alternative. Although far more expensive than salt, NaFo appears to be less corrosive.

Highway Sign Leg-ends -- Nonstandard Alphabets

It has been brought to the attention of the Federal Highway Administration that a few vendors are selling computerized sign copy cutout machines that generate nonstandard highway alphabets and nonstandard spacings between alphabets/numerals for highway signs.

Please be advised that the design of computer-generated alphabets and spacings must comply with the Federal Highway Administration's (FHWA) Standard Alphabets for Highway Signs and the Standard Highway Signs publication. The standard alphabets were developed to provide optimum day and night legibility.

As a simple check in the field, refer to pages 6-16 and 6-17 of the Standard Highway Signs book. The destination New York City layout in 16-inch upper case and 12-inch lower case letters should be about 200 inches in width. Philadelphia should be about 145 inches. This simple test can be made by any sign shop.

It has also been learned that a few vendors are selling cutout dies for nonstandard lower case letters. These alphabets are commonly referred to as "Series C or D modified." As a reminder, only the FHWA Series E modified alphabet is standard. All other modified lower case alphabets are nonstandard and should not be approved for use in highway signing.

If there are any questions on this matter, please call the Bureau of Traffic at the New Hampshire Department of Transportation. ■

Q. Our first operation is to plow as soon as necessary, but not salt until the final stage of cleanup as the storm subsides. Is there a more efficient way to deal with the storm?

A. You first have to ask yourself what you want to accomplish. If you only plow, there will usually be snow left on the pavement.

The above questions and answers were rewritten from the Salt Institute's Fall, 1989 newsletter *Salt & Highway Deicing*. Other pertinent questions concerning salt may be addressed to the Salt Institute, 206 North Washington St., Alexandria, Virginia 22314; or call the Technology Transfer Center at 1-800-423-0060. ■