

March 2000

LIQUID DEICER USE IN MISSOULA

This fact sheet has been prepared by the Missoula City-County Health Department to help answer public questions about the use of liquid deicers in Missoula. If you have further questions, please contact the City of Missoula Public Works Department at 523-4620 or the Health Department at 523-4890.

When Did the City of Missoula Start Using Deicers and Why

Liquid deicers have been used to melt snow and ice in Missoula since 1992. The City switched to deicers from traditional sand and salt to comply with Missoula Air Quality regulations adopted at that time. Missoula has had a long history of air pollution problems. Studies done in the early 1990s showed that sand used for winter traction was a source of particulate in the air we breath. The use of deicers has effectively reduced the amount of particulate in the air and improved the general health of the community.

What is in Liquid Deicers

Prior to use of liquid deicers, sand and salt (sodium chloride) were used for traction on roads in Missoula. For the past several years, liquid magnesium chloride has been used. The magnesium chloride is a salt, like sodium chloride, concentrated from the Great Salt Lake. A small amount of corrosion inhibitor (usually less than 5% by volume) is added to control corrosion of the deicer. The types of corrosion inhibitors have changed over the years. Zinc metaphosphate and lignin sulfonate were some of the original inhibitors added by manufacturers to control corrosion. More recently, manufacturers have added agricultural by-products commonly used as animal feed and amines to control corrosion.

What Has Been Done to Make Sure the Deicers Are Safe

Several studies have been performed to quantify potential impacts of deicers. The most comprehensive was that completed by the Missoula Water Quality District in 1995. The district collected several samples of deicer, storm water, and groundwater during the study period from 1993 through 1995. The results of the study generally showed that magnesium chloride deicers used at that time did not pose a significant risk to groundwater or surface water. A shift from sand and salt to deicer does result in a slight increased load of trace metals to the environment, but this loading does not appear to be adversely affecting groundwater or surface water in the valley. Nutrient loading (phosphorus and nitrogen) may also increase depending on the type of deicer and inhibitor added to control corrosion. Monitoring wells installed directly down gradient of storm drains did show a slight increase in chloride concentrations during spring melt off, but this increase was short lived and by the summer chloride levels returned to background concentrations.

In about 1995, the Transportation Departments of Idaho, Washington, Oregon, and Montana drafted the first ever specifications for deicers in the United States. These specifications set limits on the amount of potential pollutants (metals, phosphorus, etc.) allowed in a deicer. The specifications also set a limit on how corrosive a deicer could be. Any deicer applied in Missoula now must be at least 70% less corrosive than salt (sodium chloride).

The Water Quality District has recently proposed a new regulation for deicers that will provide further safeguards for water quality in the valley. These specifications, which will likely be adopted as part of the local Aquifer Protection Ordinance, set more stringent standards than those adopted at the state level. It is hoped that by winter 2000/2001 all deicers used in Missoula Valley will have to meet the quality thresholds proposed in the local regulation, including limits for a variety of contaminants. The district also continues to monitor water quality to evaluate trends and to ensure deicers are not causing significant degradation of water quality. By setting strict standards and testing for potential impacts, it is

hoped that deicer use will continue to limit the amount of particulate we breath, while at the same time remain a minimal risk to water quality impairment.

For more information on deicers, please call the City Public Works Department at 523-4620 or the Missoula Water Quality District at 523-4890.