

LEARN MORE ABOUT THE DETAILS OF

HAPPY PAWS™ ICE MELT

Happy Paws™ Ice Melt is made with CMA. CMA, calcium magnesium acetate, is an environmentally safe, low-corrosion alternative to salt and chloride-based deicers. This product is designed for applications where corrosion, concrete spalling, or the environment are of concern. Clear scientific evidence shows CMA is virtually non-corrosive, that it does not damage concrete, and because it is biodegradable it is safe for the environment. It does not harm vegetation, aquatic organisms, or receiving waters.

Originally developed by the U.S. Federal Highway Administration as a low-corrosion alternative to road salt, today CMA is used by government agencies, commercial institutions, and private parties worldwide. CMA is made from limestone and acetic acid (a component of vinegar). Like road salt, it is most effective above 20°F (-7°C). Unlike chloride deicers, CMA protects the environment. The calcium improves soil structure (the benefit we get from liming our gardens/yards). Magnesium is an essential part of plant photosynthesis. And, the acetic acid component biodegrades to CO2 and water.

Also unlike chloride deicers, CMA is safe for concrete, rebar, other metals, and vehicles, and is considered a good corrosion and spalling inhibitor when blended at relatively low rates (>20%) with sodium chloride. So good, that we can recommend SubZero 20™ for walkways when concrete quality is the primary concern. Blending CMA reduces costs while still maintaining many of CMA's infrastructure advantages. For areas where metal corrosion is the primary issue, CMA is always the best choice.

Conducting experiments with Happy Paws™ Ice Melt (CMA) and salt are relatively easy. You can easily demonstrate the comparative effects of Happy Paws™ with those of salt on plant life and metal with the following experiments:

1 Obtain a number of small, inexpensive plants. Randomly divide your plants into three groups – a Happy Paws™ group, a salt (NaCl) group, and a control (tap water) group.

Prepare a 5% solution of Happy Paws™ and a 5% solution of NaCl and fill plastic spray bottles with each solution. To obtain 5% solutions, dissolve five grams of material in 95 grams of water. We recommend you use a mortar and pestle to grind the Happy Paws™ pellets. This will reduce the time necessary to dissolve the Happy Paws™. Fill a third sprayer, the control, with tap water.

By spraying and watering the plants in each group with their respective solutions, you will be simulating the effect of the deicing chemicals on roadside vegetation. Melting ice produces runoff, which is available to the plant's roots. Spray, created as automobiles drive through, settles on the plants' foliage.

2 Effects on Metal (using 10-penny nails)

First, clean the nails with sandpaper or steel wool. Next, prepare 5% solutions of both Happy Paws™ and salt in two 100-ml beakers. 50 grams of material dissolved in 950 grams of warm water will produce 5 % solutions. Fill a third 100-ml beaker with about 950 ml of tap water. At this point, measure the pH of each solution. Solutions of lower pH will predictably cause more corrosion than more basic solutions.

Suspend one nail in each solution for as long as possible (2-3 weeks should be sufficient). Make notes regarding changes in the nails' appearance over time. At the end of the exposure period, clean the nails with a nylon scrubber (and a mild cleanser if necessary). Dry and weigh each nail using a balance sensitive to 1/100 of a gram. Differences in nail weight would indicate the degree to which the steel was corroded by each solution.

Laboratory evaluations of product performance are, at this time, simply unable to predict actual field performance, or to help users select among candidate chemicals. None of these test methods really addresses the fundamentals of keeping roads clear. Instead, lab deicer tests are virtually all ice melting tests, wherein weighed amounts of chemical are applied to carefully prepared, pure, ice. Whether measuring free brine created or undercutting or penetration, these test designs clearly do not deal with the most common problem faced by road maintenance crews, namely snow accumulation and adherence (snowpack). The basic problem with this type experiment is that it only measures the degree to which candidates behave just like salt. They discriminate against candidates which are different or function in fundamentally different ways but achieve the same result. Salt readily dissolves and produces brine but the test cannot tell if this would refreeze or float on top of road ice or snowpack. The presence of water in the deicer, whether liquid or solid, must be accounted for. At the other extreme, Happy Paws™ (CMA) performs very poorly in this type of test. CMA chemically ties up the first ice melted as waters of hydration so there is little runoff. Then it dissolves, but the brine does not run off. With only "ice melting" data to judge, CMA might never be used. Yet many users report that CMA is just as effective as salt, at rates from 1/2 of salt usage up to equal rates – but the application strategy is different and the result is an "oatmeal" snow which is easily removed and will not pack to itself or to the road.

HAPPY PAWS™ (CMA) WORKS

DIFFERENTLY

When mixed with snow, Happy Paws™ (CMA) interferes with the ability of snow particles to adhere to each other or to the surface. It does not create a flowing brine like salt, but keeps the snow lighter and drier improving traction. Applied early in the storm, Happy Paws™ (CMA) prevents the formation of snow pack and the bonding of ice to the pavement surface, so snow and ice can be removed more easily by plow, broom or shovel.

Product brochures, articles, studies, and samples of Happy Paws™ are available upon request. If you have any questions regarding experimental design or the interpretation and reporting of results, please feel free to contact us, remember to include your mailing address when requesting information.