

Before You Deice With Urea.....

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It's that time of year again, when nearly every day is a battle with the cold! There are many ways we combat it, and many expenses associated with trying to keep warm. Among a few:

- \$ Letting your car idle for ten minutes before going to work in the morning;
- \$ Buying layers of new clothes to protect us outdoors,
- \$ Heating your home; and, maybe not last and certainly not least,
- \$ Making sure no one slips in the driveway and no cars slide into the side of the house!

How do we protect ourselves, our friends and our family from the most dangerous culprit of the cold, AKA ice? We melt it! There are many reagents one can use to accomplish this, but which one do we choose? Or more importantly, which one do we not choose? For the sake of our watershed, this article will focus on urea.

What is urea?

Urea is a compound with the chemical formula $(\text{NH}_2)_2\text{CO}$. It is found in nature (in our urine) and is also made artificially. It has a very high nitrogen content, and is most often used as a nitrogen-release fertilizer. While urea has many other uses, it is commonly used as a deicer.

Why not urea to thaw ice?

Not only will it deice your driveway, but when it washes away, urea's fertilizer properties will boost your lawn growth. More for your money, right? Well, not exactly. Urea is a more costly method of deicing, compared to others. It performs poorly under temperatures of 25°F , and exhibits damaging properties as well.

When urea washes off of driveways, it often ends up in the most nearby stream or river. Urea, by itself, has a high biochemical oxygen demand (meaning that as it degrades, it binds up the dissolved oxygen in the water) and decreases the available oxygen to aquatic organisms. As this compound dissolves it releases nitrogen into the water, accelerating the growth of algae blooms, and further cutting off the oxygen to other beneficial and economically significant aquatic organisms (i.e. fish). This leads to "dead zones", where there is no dissolved oxygen to support life.

The Chesapeake Bay ecosystem, whose shallow waters are very sensitive to pollution, is being severely degraded by nutrient runoff coming from various sources all over the watershed. Because of this, West Virginia is now following a pollution budget for nitrogen, to further aid in the Chesapeake Bay cleanup. Our local communities are struggling with ways to efficiently reduce the amount of nitrogen in local streams. Each resident can make a difference in the local watershed and in the Chesapeake Bay watershed by reducing these nitrogen sources and refraining from using nitrogen-laden products that have a high potential to end up our streams.

If you are drawn to urea because of its dual deicing/fertilizing purpose, keep in mind that in the spring when the rain and melts come, the soil in your lawn will still be frozen for some time before thawing. It is likely that the urea will still run off of your lawn and into a storm drain or local waterway.

If you have already purchased urea and intend to use it, it is important to apply it in places where it is more likely to run off into vegetation, rather than straight to a nearby storm drain.

If not urea, then what?

There are alternatives to deice that will increase traction and protect you from ice. University of Maryland's Cooperative Extension suggests:

- ✓ Warm water mixed with table salt, water conditioner salt, or the brine backwash from a water conditioner;
- ✓ Use sand, ashes, or kitty litter to improve traction;
- ✓ Establish a dry route and block off slippery areas; or
- ✓ Cover small areas with heavy plastic before ice storms hit.

For more information on deicers and alternatives visit:

<http://extension.umd.edu/publications/PDFs/FS707.pdf>

Remember that when you chose a deicer, you're not just making a choice for your wallet and your driveway; you're making a choice for the environment!