

5 steps to a winter-liquids program

You don't need to break the bank to produce salt brine, pre-wet, and/or anti-ice.

How many times in recent years have we heard we have to do more with less? With budgets straining, how can you continue providing excellent service?

The answer: Add liquids to your winter maintenance program.

A common misconception is that you need thousands of dollars to get started. Not true.

We started out by buying a 75-gallon Monroe Truck Equipment pre-wet system and obtaining basic salt brine from a township a 10-minute drive away. We soon realized the limitations – such as competing with our supplier for product during storms – of relying on an outside source. So with \$600 and some creative thinking, we built our first brine-production system: a livestock water tank, pump, valves, and 500-gallon storage tank.

It took only a few days to put together and test. Being self-sufficient was a huge advantage, and we quickly learned that pre-wetting lowered salt consumption 20% to 30%.

The next hurdle was production. With

just one pump handling both production and storage, we had to use up all the liquid before making more and we'd run out during back-to-back storms. We also wanted to expand into anti-icing.

Instead of spending \$5,000 on a commercial applicator, we converted a pre-wet system into one. But that, too, had limitations: Though it cost us less than \$25, each tank could anti-ice only 1.5 miles of road. We eventually bought a Dultmeier Sales Series 400 applicator that dispenses 325 gallons per tank and placed tailgate-mounted pre-wet systems from Monroe Truck Equipment on all front-line plow trucks.

As we set up more trucks for pre-wetting and anti-icing, we needed to produce even more brine. By this time, though, we'd encountered the limitations of straight salt brine: it shouldn't be applied if pavement temperature is less than 15 degrees. With help from our local DOT, the McHenry County Division of Transportation, we took the plunge and decided to blend our own product in house.



Fast forward five years

We now produce up to 1,500 gallons of our exclusive “recipe” — 80/20 salt brine/Future Road Solution Inc.’s GeoMelt55 sugar beet anti-icing accelerator — at a time. We chose to do this because for the cost of salt brine purchased from a vendor we could produce our own brine, buy a product to blend with it, and have a more versatile liquid.

Average winters have us using over 10,000 gallons on 78 miles of roads and using less salt than we did 10 years ago, when we had 60 miles — a 30% increase in road miles.

The five basic elements

So you’ve decided this may work for your community. How and where do you start?

Do some research and talk to communities that have done it. You’ll get some great ideas, find out it costs a lot less than you think, and learn how they overcame challenges.

Was their largest hurdle educating elected officials and residents so they’d be willing to spend the money? Maybe they had an issue with production and storage space and, like us, initially were able only to have a storage tank and had to purchase product.

I help in any way I can when I’m contacted. I offer statistics on pre-wetting and anti-icing, refer folks to other gov-

ernment agencies that use liquids, help them get started either buying systems or parts to build their own, and/or offer to attend board or council meetings to speak directly with elected officials about Spring Grove’s experiences.

Liquid. If you have the ability and the space, you can produce your own salt brine or blend.

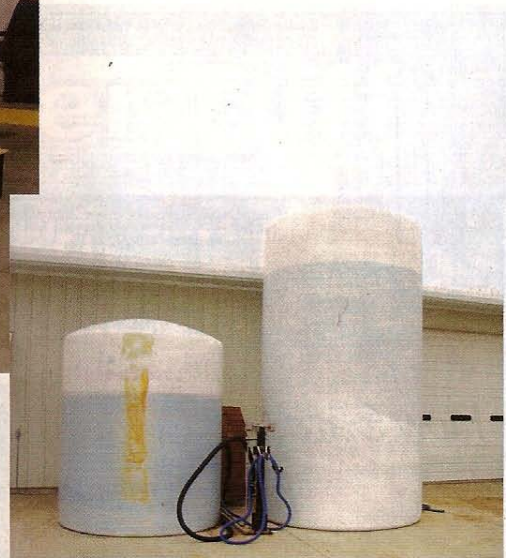
If not, vendors sell any type of concentrate or blended product you’re looking for. Be specific when you talk to them and tell them what results you are looking for. Municipalities that service higher-speed roads may want something different than a municipality that services only residential streets.

If neither of those options will work, can you buy from a neighboring community using a simple intergovernmental agreement. Or barter one of your services in exchange for liquid.

Application system. You can make existing trucks capable of dispensing liquid or buy an applicator, most of which are fairly easy to install.

We started out by making our own. Local agriculture or hardware stores (Farm & Fleet, Conserv FS, etc.) are a great place to start. We order from the Iowa branch of Dultmeier Sales, which has everything from production and application systems

(continued)



Village of Spring Grove, Ill., Public Works orders 3,000 gallons of GeoMelt 55 at a time (tank at right) from SNI Solutions of Geneseo, Ill., and blends the chloride-free anti-icing accelerator with salt brine in a 20/80 solution that’s stored in a 6,000-gallon tank outside. “I chose SNI because the company president himself came out to discuss my goals and helped me develop a blend that would work for my specific needs,” says Public Works Director Matt Wittum. All photos: Matt Wittum

Tell the vendor the specific results you’re looking for. Cities that serve higher-speed roads need a different type of concentrate or blend than cities servicing primarily residential streets.

to the parts necessary to build your own system and bought hoses, fittings, and couplers from Farm & Fleet.

The company that up-fits your trucks probably sells liquid-dispensing systems.

Monroe Truck Equipment's headquarters in Monroe, Wis., installs our plows, dump bodies, hydraulic, salting, and liquid systems. Another popular up-fit company is Bonnell Industries Inc. in Dixon, Ill.

Pavement temperature sensor. Like salt, the effectiveness of anti-icing and pre-wetting depends on pavement temperature. To avoid wasting product, you'll need to know when asphalt or concrete is too cold; depending on the liquid it'll freeze upon application. Also, you need to know humidity and dew point for blends with chlorides (calcium and magnesium) because they draw moisture in.

Hand-held units similar to a radar gun start at under \$100 (ours is made by Fluke Corp. of Everett, Wash.) After that, research your liquid product and find out the recommended gallons-per-ton application rate and set/calibrate your application system accordingly.

Driver training. I've had the privilege of instructing the McHenry County DOT's certification course. There are many, many years of experience there, which is a great resource. Other organizations that offer classes and seminars include:

- American Public Works Association's annual Snow Conference being held this month in Charlotte, N.C.

www.apwa.net/snow

- Snow & Ice Management Association www.sima.org

- Snowfighters Institute

www.snowfightersinstitute.com

Depending on whether you're anti-icing and what type of liquid you have, preparations for a winter event can be made days before an event. I strongly recommend writing and sharing with elected officials and the public a policy outlining specific criteria and guidelines for liquid applications. If you've chosen to anti-ice, explain when and how



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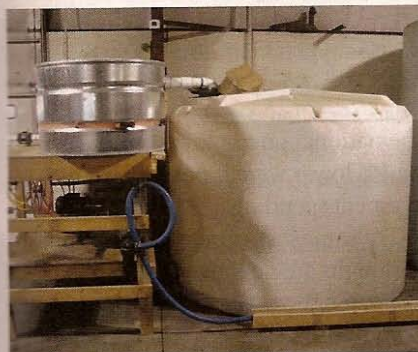
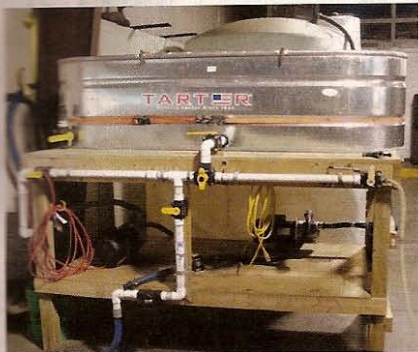
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The anti-ice system designed and built using a 75-gallon pre-wet system manufactured by Monroe Truck Equipment.

you'll be using liquids. Our policy is available at www.springgrovevillage.com/departments/Public_Works/PW-snow_&_ice_control.html.

Resident education. Finally, let's not forget the reason we do this. Use websites, newsletters, and local newspapers to give residents the information they need. (Spring Grove mails a flyer upon request.)



HOW TO JUSTIFY A LIQUIDS PROGRAM

Studies show pre-wetting reduces salt use up to 20% to 30%, and sometimes more. Apply this percentage to how much a truck uses on a typical 2-inch snowfall and for the season to calculate projected savings.

Liquids also lower overtime, fuel consumption, and vehicle and equipment wear and tear. Use projected savings to upgrade your system — if your board or council doesn't use it to offset budgets elsewhere.

That's how we were able to start and grow our liquids program: As more savings were realized, equipment was upgraded and additional equipment was purchased. When the economy turned bad, this became our only option for additional investment.

Do whatever you can to tell residents what you're doing and why, when you're doing it, and how. Communication will affect how successful your program is. **PW**

— Matt Wittum (mwittum@springgrovevillage.com) has been public works director for the Village of Spring Grove, Ill., a community of 6,000 that borders Wisconsin, for eight years.

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