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Recycled material chips in to protect pipes from the cold

JOANNE LAUCIUS
Ottawa Citizen

When the chips are down, the water pipes won't freeze — or so the theory goes.

This winter, National Research Council scientists are using plastic chips made from margarine containers to insulate water lines at five test sites around the Ottawa region.

If the low-tech solution works — and lab tests say it will — it could end the winter horror of main water pipes freezing.

Last winter — the coldest in 60 years — about 2,400 water service lines froze in the Ottawa-Carleton area, about 12 times the usual number. Thawing the lines cost the region \$2.2 million, and some residents were without water for up to two weeks.

"We're excited about the (plastic chips) project because we've found a product that is basically waste," Dr. Guy Felio, the head of the infrastructure lab at the NRC's Institute for Research in Construction.

The chips are made from high-density washed and shredded plastic products like margarine tubs, yogurt containers and plastic drinking glasses culled from recycling boxes.

The shredded plastic costs about \$400 a house, but that could probably be reduced to

\$100 if low-density recycled plastic was used. That's about the same price as the foam boards now used for pipe insulation. But plastic takes up more space in the pipes' trench, so less sand is required for fill.

Labor costs are also reduced because the plastic can simply be dumped into the trench. The foam boards — the same material used to insulate houses — must be fashioned into a cover shaped like an inverted U.

In addition, the plastic's insulation levels may be high enough that trenches can be shallower. And plastic doesn't degrade.

"If the material does a good job, we won't have to come back for 30 or 50 years," Felio says.

Scientists have tried other solutions for insulating water pipes. In Calgary, they suggested clay "popcorn" — pellets of clay fired at high temperatures. It was a good insulator, but the plant that manufactures it is too far away to make it an effective solution for Ottawa-Carleton.

The NRC researchers tried recycled rubber tires and found they compressed too easily. So did wood chips. They experimented with plastic recovered from old electrical wire, but gave up on the idea because they feared it would contaminate groundwater.