FAST FACTS:

Repairing broken or leaky pipes and the loss of water supplies cost ratepayers and taxpayers millions of dollars every year.

The oldest sections of water distribution systems in cities serving more than 50,000 people are more than 70 years old on average.

The Vinyl Council of Canada (VCC)

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A Council of the Canadian Plastics Industry Association

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The only disinfectant that protects all the way to the tap

Drinking water often travels through miles of pipe before it reaches the tap. Older pipes can be cracked, which may result in contamination or waste of this precious resource. The "residual" qualities of chlorine-based disinfectants, together with the superior characteristics and protection of chlorine-based vinyl piping, significantly increase drinking water safety and reduce outbreaks of waterborne disease.

Chlorine-based Disinfectants Provide Lasting Protection

During the treatment process, water is subjected to several levels of treatment aimed at removing contaminants. However, once the water leaves the facility, it can become recontaminated in damaged, corroded, or microorganism-infested pipes. Preventing water contamination is a challenge in cities, where deteriorating conditions of water distribution infrastructure can allow germs into the system after water has been purified at the treatment plant.[i]

A "residual" refers to the required level of disinfectant that remains in treated water to ensure disinfection protection and prevent recontamination throughout the distribution system.[ii] Chlorine-based disinfectants are the only disinfectants that provide residual protection.

Reduces the Risk of Contamination from Breaks

Chlorine reduces the risk of contamination from intrusions into the distribution system caused by breaks or leaks.[iii] Since Canada's largest water distribution networks average over 500 breaks per year, chlorine-based disinfectants are necessary to help protect the public from dangerous microorganisms that can enter the water distribution pipes when breaks occur.

Prevents the Regrowth of Microorganisms

Even without the intrusion of microorganisms into the distribution system through breaks, the presence of biofilm (the buildup of microbial growth in water pipes) can turn pipes into breeding grounds for microbial regrowth. Chlorine-based disinfectants minimize regrowth of microorganisms. While other disinfectants such as ozone and ultraviolet light are effective for disinfecting contaminants at the point of treatment, only chlorine-based disinfectants provide this lasting protection from waterborne diseases all the way to the tap.

FAST FACT:

Partially because of deteriorated conditions caused by aging pipes, most utilities in Canada lose 20 to 40 percent of their water distribution.

Vinyl Pipes Resist Corrosion and Contamination

Chlorine-based vinyl pipes also play a role in ensuring the safe delivery of drinking water. Most older distribution systems use cast or ductile iron pipes that are highly susceptible to corrosion and breakage. Vinyl pipe is more flexible and therefore more stable when laid through shifting or heavy soil. Research has shown that vinyl pipes are 51 times less likely to rupture than cast iron pipes and 13.5 times less likely to burst than ductile iron pipes.[iv] Vinyl pipes do not rust or corrode, and they are resistant to scale build-up and the growth of biofilm, a common cause of water quality problems.

Footnotes

i Ford, T.E. "A Global Decline in Microbiological Safety of Water." Drinking Water & Health. July 1997.
ii White, G.C. "Chlorination of Potable Water." The Handbook of Chlorination, 2nd ed. Von Nostrand Reinhold Company. 1986.
iii Haas, C. Benefits of Employing Disinfection Residual. 1998.
iv Rajani, B., S. McDonald, and G. Felio. "Water Mains Break Data on Different Pipe Materials for 1982 And 1993." NRC Canada Report. 1995.

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