Chlorine Disinfection

For Small Drinking Water Systems

Chlorine inactivates potentially harmful organisms through the process of oxidation. It can be used to disinfect source water (primary disinfection) and to protect treated water as it travels through a distribution system (secondary disinfection).

Process

Most small drinking water systems that use chlorine use sodium hypochlorite solution. It is typically stored in a mixing/holding tank and injected by a chemical pump into the water supply.

Primary Disinfection

Chlorine requires a minimum concentration and contact time to inactivate microorganisms in water. Multiple factors, from source water quality to holding tank size, baffling and chlorine demand must be considered to ensure an adequate level of disinfection. For this reason, these systems must be professionally designed and installed. If you obtain your drinking water from a lake, river, or non-secure well, treatment to remove chlorine-resistant parasites will be required in addition to chlorine treatment.

Secondary Disinfection

For drinking water systems that supply multiple buildings or access points (e.g. trailer parks), chlorine can be used to protect water quality in the distribution system. This is done by maintaining a minimum chlorine residual in the lines. Unlike for primary disinfection, a minimum contact time is not required for secondary disinfection. Many small drinking water systems use ultraviolet treatment for primary disinfection and chlorine for secondary disinfection.

Testing Free Available Chlorine Levels (FAC)

If chlorine is used for primary treatment, the levels must be tested and recorded before the water enters the distribution system. This can be done continuously, using an inline chlorine analyzer, or manually (at least once a day), using an approved drinking water test kit.

When chlorine is used for secondary treatment, the chlorine levels must be tested and recorded at various sites in the distribution system. The number of sites that must be tested on a given day is based on the number of buildings and/or access points in the system.

1-800-265-7293
info@wdgpublichealth.ca
wdgpublichealth.ca