

### **We already treat the water with UV. Why do we have to chlorinate the water as well?**

Both chlorine and UV provide excellent disinfection of water.

Ultraviolet (UV) light works by inactivating micro-organisms, making them unable to reproduce in the human gut. This treatment allows them to pass right through the body without causing any illness. UV light is a highly effective disinfectant at the **point of treatment**, but doesn't offer any protection from possible recontamination of the water within the reticulation once it has left the treatment plant.

Chlorine is a highly efficient disinfectant that will kill most micro-organisms in the water. Once introduced into a water supply, chlorine will continue to kill any pathogens that it comes into contact with as it passes through the reticulation. This is called a residual disinfectant and this is the major difference between UV and chlorine treatment.

### **How can the water in the reticulation get recontaminated?**

Contaminated water can enter a water supply through cracks in pipework, or through any backflow in the reticulation. Backflow is one of the biggest risks to water supplies and happens when water flows backward from a customer's property into the network. This can happen when pressure drops in the network and causes water (and potentially contaminants) to be sucked or pushed back into the public water supply.

### **How safe is chlorine?**

Chlorine has been used to safely treat drinking water around the world for around 120 years. It keeps millions of people, including most New Zealanders, safe from waterborne illness.

### **I don't like the taste and smell of chlorinated water. What can be done to improve it?**

When previously unchlorinated supplies have chlorine introduced into them for the first time, there can be a change in taste and smell of the water. This is due to the reaction of organic material, usually on the pipe walls, reacting with the chlorine. The compounds created from this reaction are called chloramines and these chloramines are the cause of the change in taste and smell.

Over time the taste and smell should improve as the organic matter disappears, leaving less matter to create chloramines.

Letting drinking water stand for 24 hours in the fridge, or the use of filters (both jug and under bench varieties) can remove the smell and taste.

**What is FAC?**

When chlorine is introduced to untreated water it gets 'spent' or used up when it reacts with organic matter and micro-organisms. Water treatment plant operators need to ensure that the amount of chlorine left in the water after it has been spent is sufficient to continue to safeguard the water from any possible recontamination throughout the reticulation. This leftover chlorine is called free available chlorine (FAC). The minimum FAC level is specified in the New Zealand Drinking Water Standards (DWSNZ).

**What is DWSNZ?**

Drinking Water Standards for New Zealand, produced by the Ministry of Health, defines maximum acceptable values (MAV) for organic, inorganic and bacterial elements that may be present in drinking water. These values are set at levels which require the water supplier to act before water quality can cause adverse health effects to consumers. All public water supply operators around New Zealand must comply with DWSNZ.