

## Sanitization Processes

### Water Sanitization

#### Chlorine

According to WHO (World Health Organization), chlorine is the most used disinfectant for water, but it needs to be monitored due to its harmfulness at high concentrations. It is used in the sterilization process of many applications. In water treatment (wastewaters, drinking waters, industrial waters, cooling systems, etc.), chlorine can be used during the entire treatment or in certain phases of sterilization. The proper concentration is very important for an efficient disinfection. Elements like pH, temperature and hardness can greatly influence disinfection.

#### Waterworks and drinking water plants

In the final phase of the drinking process, residual chlorine is left in water to preserve disinfection for domestic use.

Chlorine concentration control has become more strict because high concentrations of chlorine are bad for health and environment.

This is why it is so important to carefully check chlorine residuals.

#### Swimming pools

Sanitization in swimming pools and spas is very important, because less than excellent water quality cannot be tolerated. For correct disinfection, water needs to be tested daily to prevent the residual presence of disinfecting agents from going above the alarm limit.

Moreover, parameters like hardness and alkalinity need to be monitored weekly, as they influence plant maintenance. In fact, these two factors are the main cause of corrosion and deposits in pipes.

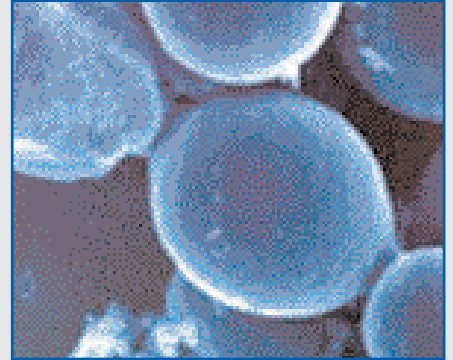
#### Wastewater plants

In the past, wastewater could be put directly in surface and natural waters without being treated.

Population growth and industrial activities around cities increased the quantity of pollution discharged into waters. To solve this health and environmental problem, new regulations state that all wastewater needs to be treated before being discharged. Treatment consists of a multi-phase process to reduce or remove suspended solids, organic substances, nutrients, micro-organisms, and other pollutants. In some of these phases, chlorine needs to be monitored for effectiveness.

#### Boilers and cooling plants

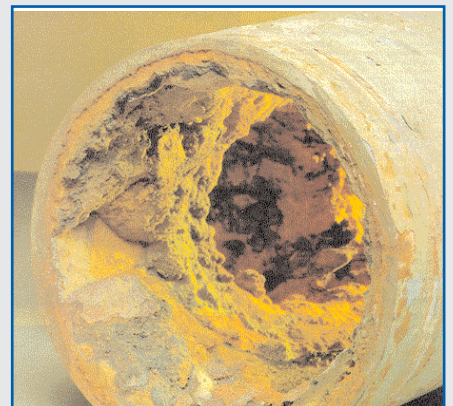
The presence of micro-organism deposits and metals, due to corrosion in water used in heating and cooling plants can cause damage and malfunctioning of the plants themselves. A high presence of micro-organisms cause muddy deposits that can occlude nozzle sprays and pipes and interfere with heat exchange in the cooling system. To monitor these problems, water must be treated with disinfectants. In this case, the most common disinfectant is chlorine.



**Chlorine is the most used disinfectant for water.**



**In the past, waste waters were left directly in natural waters, without treatments.**



**Limestone: it damages pipes and accelerates corrosion.**



### **Food Industry Sanitization**

#### **Meat.**

The quality of water used in many food processes is important in order to guarantee consistency of the end-product. Where water is treated or filtered to obtain clarity, it is crucial to check the turbidity to ensure it is within the acceptable range, usually around 1 NTU.

#### **Fruit and vegetables.**

As with meat, fresh fruit and vegetables are washed and rinsed with chlorine-enriched water for hygiene and conservation purposes. The chlorine concentration should be closely monitored since too high a level can become a health hazard.

### **New Photometers for Chlorine Monitoring**

Although chlorine is widely used for critical disinfection processes, high concentrations can be potentially dangerous to humans and animals. This has created a need for extremely accurate chlorine measurements for proper monitoring and control. To answer this growing need, HANNA instruments® has developed the HI 957xx series of very high precision photometers that give consistent reliable results in the field.

### **HI 957xx Cal Check™ System**

HI 957xx series can be easily tested and calibrated at any time thanks to our certified Cal Check™ solutions (optional).

Calibration standard solutions are supplied with an NIST certificate, for higher instrument accuracy.



**Fresh fruit, vegetables and meat are washed with chlorine-enriched water to inhibit growth of pathogens and micro-organisms and prolong their shelf life.**

