



Disinfection is critical in ensuring a safe water environment. Disinfectants are added to water systems to destroy microorganisms that can be potentially harmful to humans. There are two kinds of disinfection. Primary disinfection, usually done by the supplying municipality, achieves the desired level of mandated treatment. Secondary disinfection, usually applied at the facility level by the owner, maintains a disinfectant residual in the finished water that prevents the regrowth of microorganisms.

CHLORINE (LIQUID AND SOLID)



Advantages

- Effective for most microorganisms
- Solid chlorine is very stable
- Keeps a residual in distribution system
- Technology well understood
- Relatively easy to use in hypochlorite form

Disadvantages

- Can be very corrosive if overfed and requires proper handling
- Liquid can decompose quickly
- Can cause taste and odor problems

CHLORINE DIOXIDE



Advantages

- More effective than chlorine as disinfectant against microorganisms
- Controls taste and odor better than chlorine in most cases
- Forms less trihalomethanes and haloacetic acid than chlorine
- More effective on biofilms

Disadvantages

- May have to be produced on site
- May cost more for equipment and chemicals than other options

CHLORAMINES



Advantages

- Forms more stable residual than chlorine alone
- Less taste and odor causing compounds in water
- Technology well understood

Disadvantages

- Less effective than chlorine against microorganisms, especially viruses and protozoa
- May require a second product for primary disinfection



Innovative Solutions Provider

OZONE



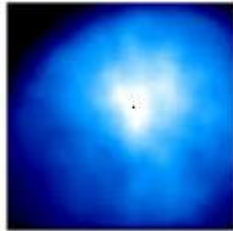
Advantages

- Most powerful disinfectant used in drinking water treatment
- More effective than chlorine dioxide
- Effective against Giardia and Cryptosporidium protozoa

Disadvantages

- Must be produced on site
- Takes more technical skill to use
- Highly corrosive to surrounding areas
- Does not provide residual protection

ULTRAVIOLET RADIATION



Advantages

- Non-chemical alternative to disinfection
- Highly effective against a wide range of pathogens

Disadvantages

- Disinfection effectiveness affected by turbidity
- UV Bulb life must be closely monitored
- Does not provide residual protection

**"Disinfection." A National Drinking Water Clearinghouse Fact Sheet. June 1996: pp 1-4.*

"Alternate Disinfections: Using Disinfectants other than Chlorine." Washington State Department of Health. May 2004.