## **Final disinfection with ozone**

### Avoid the risk of bromates

For the last few years, I.C.E. has been innovating significantly in the domain of final disinfection.

In many countries ozonation is considered to be the safest way to insure that water is fully sterile before bottling. In these same countries, very strict regulations have been made regarding the bromates level which today is considered as a major health issue. When oxidized by ozone, bromides which are naturally found in water, are transformed into bromates.

## I.C.E. expertise

I.C.E. is able to ozonate water at a final stage before the fillers, without excessive bromates creation. Bottled water producers can be certain that bromates regulation is respected while guaranteeing the biological safety.

This expertise from I.C.E. is proven every day in dozens of water bottling plants.





# **Final disinfection with ozone**

## I.C.E. solutions

Taking into account this context, I.C.E. uses 2 different approaches for final ozonation.

#### CASE N°1: the bromides level is so low that bromates creation is not an issue.

This case is typical when the raw water is passing through a double reverse osmosis. The bromides removal is such that even with excessive ozonation, the bromates limit cannot be reached.

The solution proposed by I.C.E. in this situation is to ozonate the final product tank. By keeping a constant ozone level in the tank, this allows the residual ozone level in the bottles to be stable and controlled.

#### Benefits: the final product tank is kept safe even when the production stops for a few days.



#### SASE N°2: bromides level is such that ozone can potentially generate an excessive bromates level.

In this case, I.C.E. solution is "post ozonation with **C**oncentration and contact **T**ime **control**" (**CT control**) The main principle is to inject ozone in a column installed just before the filling line and **to constantly control 2 parameters:** 

- the ozone contact time in the column
- and the quantity of ozone injected.

The nature of the water itself is taken into account to know the specificic kinetic of bromates creation for this water.

Water is biologically safe without excessive bromates. Combining these 2 parameters is one of the key expertise of I.C.E.

#### To date, this system is being used to protect more than 50 bottling lines.

To be efficient, one key element for this system is the hygienic design of the earlier stages in the water treatment installation:

I.C.E. "post ozonation with CT control" works as a very efficient last stage protection but cannot protect the filling line against a massive contamination brought by upstream deficiencies.

#### A well designed and well realized water treatment is still necessary.

**Benefits:** biological safety and bromates regulation compliance.

