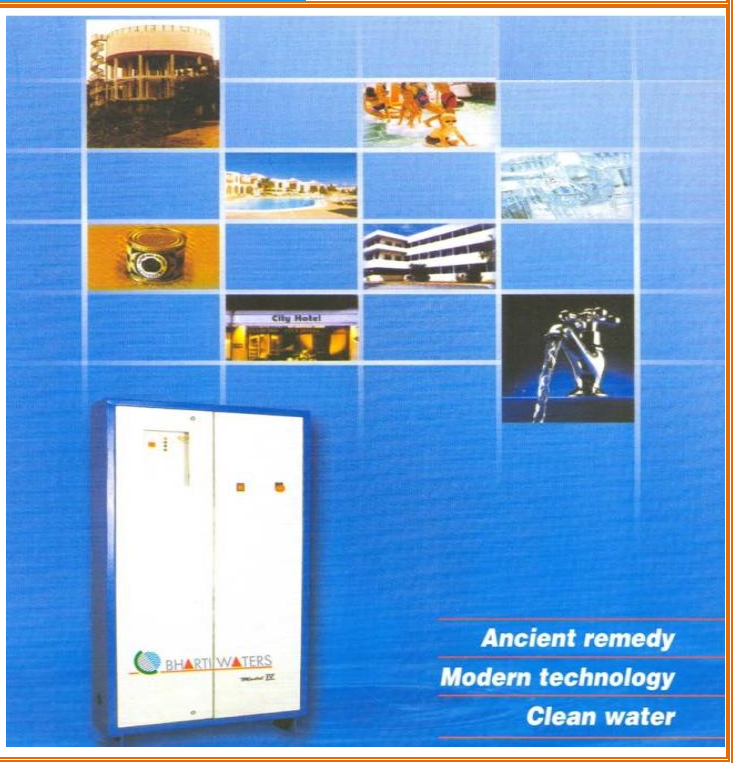
bhartiwaters®
advancing resources

SILVER IONIZATION PLANT

Disinfection by Silver Ionization

Unique features of silver ionization (disinfection)

- Silver Ionization for Drinking Water.
- Fool Proof and reliable.
- Kills all bacterial, virus and algae.
- No Smell.
- No Change in taste.
- Dosage well within WHO, EPA and BIS limits.
- Cheap running cost.
- Space Craft Technology.
- Instant Dosage Checks using field test kits.
- Wall mountable.
- Light Weight and Compact.
- Stainless Steel Water Chambers.
- User-friendly, low cost system
- Irrespective of climatic conditions



What is Oligodynamic Technology (Disinfection by Silver Ionization?

Free silver ions (Ag+) have a toxic effect on micro-organisms even in relatively low concentrations. They have a highly fungicidal, bactericidal and algaecidel effect. Medical studies describe silver ions a catalyst that disable the enzymes that microorganisms depend on to "breathe".

In the presence of air (oxygen in water). Metallic silver forms silver oxide, which also has a bactericidal effect due to its adequate solubility. The destruction of viruses, bacteria, moulds, spores and fungi through contact with silver objects is termed the oligodynamic effect. To primitive life forms, oligodynamic silver is as toxic as the most powerful chemical disinfectants. This, coupled with its relative harmlessness to animate life (i.e. mammals), gives olygodinamic silver great potential disinfectant.

How does silver ionization work?

Silver is effective because of its capabilities of interfering with DNA production and accelerating the death phase of bacteria and viruses. Copper ions have the ability to pierce the protective outer membrane of a cell and disrupt enzyme balance thereby killing algae. Although lethal to bacteria and algae, this process is completely safe for humans. A multitude of scientific tests have been done proving the effectiveness of copper silver ion systems in and spa applications. Various experiment proves that such mineral ions, in conjunction with trace chlorine are 1,000 times more effective against algae than chlorine alone. Today the use of these metals is widespread and highly advanced as is the equipment used to produce them for water treatment. A safe low voltage DC current is applied to the silver and copper electrodes. As the ions attempt to move from one electrode to the other, many of them become suspended in the water a low voltage, alternating DC current is passed through a set of metallic electrodes, which are placed in-line with the circulation system and set slightly apart from one another. The voltage causes some of the outermost atoms of the electrodes to lose an electron, thus becoming positive ions, which attempt to flow across the space between the electrodes, but instead are carried away by the flow of water. The electrodes are located in the "ion chamber" plumbed in the return line. A separate control box supplies a variable, low-voltage DC charge to the electrodes. The electrical energy removes micro particles off the silver anode which then become suspended in the water. These particles called colloids, each carry a micro electrical charge or zeta charge that holds them in suspension. The temperature, ionization and molecular structure of the water as well as the electrical current, duration and purity of silver used in the process determine the size, quantity and quality of the silver colloids.

Comparison between Silver Ionization and Chlorination

Silver Ionization	Chlorination
Uses Silver for disinfection	Uses Bleaching Powder. Gas Chlorine, Sodium Hypo chlorite Sodium.
Fully automatic, Dosage Starts when the pump runs.	Manual, Mixing is not uniform
Uniform Dosage	High Concentration for nearby habitations very low Concentration for faraway habitations
No smell & No change in taste	High Concentration for nearby habitations very low Concentration for faraway habitations
High residual effect — Hence Protects Water from further contamination upto 48 hours.	Smells of Chlorine & Taste changes.
No side effects on Health	Low residual effect. Effect lasts for few 3 to 4 Hour only
Running cost of Consumables(electrodes) is Rs. 120 Per Million liters of water	Chlorine forms carcinogenic by products.Hence produces cancer (BleachingPowder, Sodium Hypo chlorite Chlorine).
No Labour cost involved	Labour Cost is involved
We are sure of automatic disinfection	As it Is manual. It has its own Known defects.
The electrodes do not loose its properties when stored for a Long time.	Bleaching powder loose Its strength when stored for a period of time.
Non Corrosive	Corrosion occurs in pipe lines.
Electrode has to change only once in a 6 to 7 months hence one electrode can be kept as inventory for one plant.	Inventory has to stocks for several months bulky material has lost his chlorine percentage.

Performance Comparison

Compare	Silver Ionization	Chlorine
Harmful to Eyes?	No	yes
Irritating to Skin?	No	yes
Bleaches Hair?	No	yes
Explosive, Unsafe to Handle?	No	yes
Dangerous to Store?	No	yes
Corrosive to Water supply Lines ?	No	yes
Evaporates?	No	yes
Toxic to Landscaping?	No	yes
Toxic to Landscaping?	No	yes
Unpleasant to Smell?	No	yes
Constant Hassle?	No	yes
Linked to Cancer?	No	yes
Toxic to Lungs?	No	yes
Requires Daily Maintenance?	No	yes
Absorbs through Skin?	No	yes
Leaks Hazardous Benzene from Pipes?	No	yes
Forms Carcinogenic Trihalomethanes?	No	yes
Creates Chloramines?	No	yes
Requires Use of Cyanuric Acid?	No	yes
Requires Use of Cyanuric Acid?	No	yes
Harmful to the Environment?	No	yes
Kills Algae?	Yes	No
Kills Bacteria?	Yes	No
Kills Viruses?	Yes	No

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