

POU SIS

Colloidal Silver Ion Sterilization



SIS SILVER
ION
STERILIZER

*With Silver's natural antiseptic, bacteriostatic,
and disinfectant power, delivery of silver ion by electrolysis*



KOTRA GLOBAL BRAND COMPANY
HI-SEOUL BRAND COMPANY



WACO Corp.

MADE IN KOREA 

POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

The needs of Sterilization(Pollutant from structural matter)

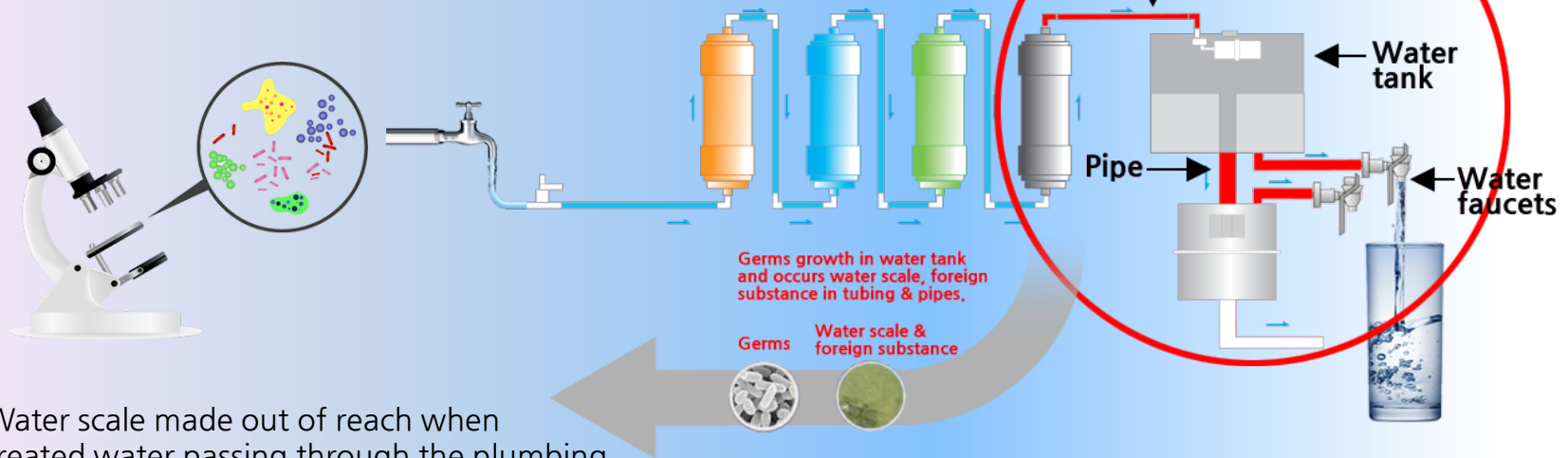
The pollution from flow channel, reservoir tanks, water outlet and other places could be arose by accumulation of water scale if end-user couldn't managed well for a long time.

*** The problem is treated water by water filters could be polluted through moving route such as inner flow path, water tank, faucets as well.**



1. The structure of POU Water Cooler

The tap water(or underground water) is filtered through several steps of filters and stored in tanks then comes out from the water faucets. It means the drinkable water should be passed by tubing or pipes step by step.



Water scale made out of reach when treated water passing through the plumbing and pipes thus multiply germs. Furthermore, water tanks and faucets are largest pollutant of treated water.

POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

The needs of Sterilization(Pollutant from structural matter)

2. Typical Method

- Steam Sterilization of Water Tanks
Decontaminating the inner area of water tanks by regular steam sterilization.
- Replacement of tubing and pipes
Replace tubing and pipes inside the POU Water Cooler



- **The difficulty of typical method**

: It's hard to do this work regularly for end-user themselves as well as needs time and money.

3. Advanced disinfection solution of POU Water Cooler

The patented SIS(Silver Ion Sterilizer) prevents contaminants of treated water stored in water tanks of POU Water Coolers fundamentally by spraying optimal amount of silver ions into flowing water directly thus effectively kills the bacteria and germs.

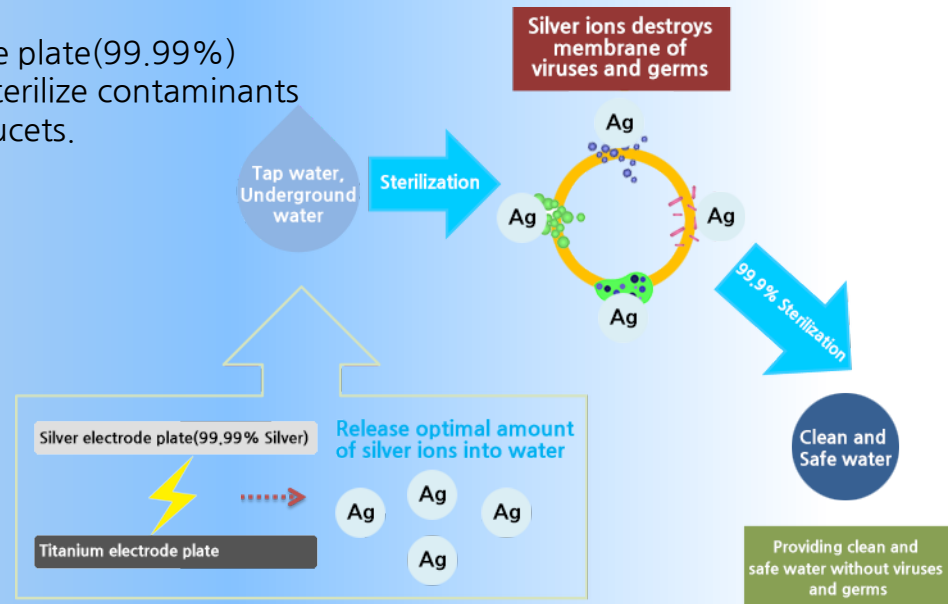
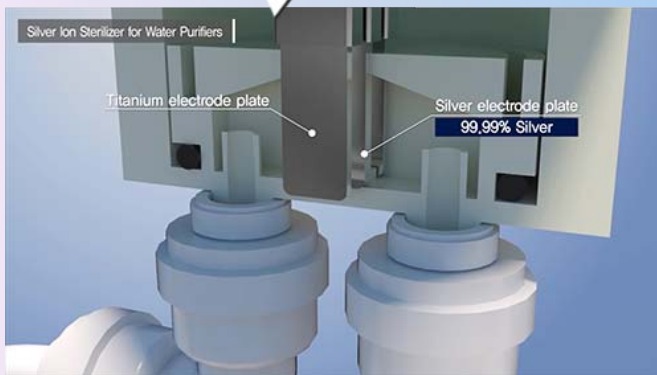


POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

POU SIS

1. The principal of sterilization

Delivering direct current(DC) to inner silver electrode plate(99.99%) to release optimal amount of silver ions, therefore sterilize contaminants which located inner flow path, water tanks and faucets.



*** Silver ions**

It is a colorless and tasteless colloidal liquid which has antibacterial and sterilization properties itself. It's an electric apparatus to eliminate all kinds of bacterial, microbial colon, waterweeds melted and existing in water. Control units that are composed of semiconductor automatically send a direct electric current at regular rate. Accordingly, an colloidal anions generate and these anions can make each bacterial incapacity by reacting on the surface of a cell of microbial. While it sterilizes various kinds of bacteria and viruses, it is also harmless to humans, animals and plant.

POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

POU SIS

2. Silver Sanitization(antibiotics) Mechanism

An anions process of vulcanizing the cell wall by reacting with a amino group which is one of components of the cell wall. According to this, organism can't absorb nutritious and water and get to die by preventing the metabolism. Electric load of an anion keeps the generative function of organism and when exposed to silver it can be extinct 100%. This phenomenon is called Origidynamic Action.

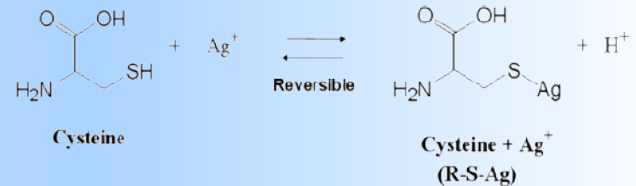


Figure 1. The interaction of silver ion and cysteine[6].

The interaction of silver ion and cysteine

Reference of Silver Sanitization(antibiotics) Mechanism
(Seoul National University Department of Chemical Biotechnology)

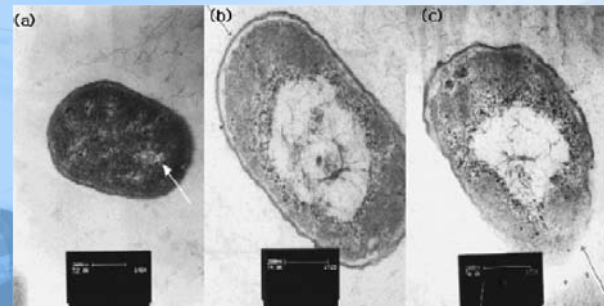


Figure 3. TEM images of *E. coli* (a) untreated, (b) & (c) treated with 10 mg/L of silver ion for 16 h[3].

Destruction of Microbial Cell Membrane by silver ions.
(Observation by electron microscope)

Reference of Silver Sanitization(antibiotics) Mechanism
(Seoul National University Department of Chemical Biotechnology)

POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

POU SIS(Silver Ion Sterilizer of POU)

3. Safety & Sterilization effect on Silver Ions

WHO recommends to use silver ions maximum permissible value of 0.1 ppm (=100 ppb) within the second class drinking water standard, it's defined as long-term or short-term, not specified as the first class of legally binding drinking water from the U.S. Environmental Agency (EPA). The carcinogenicity and risk assessment is classified as a "D & E" group with nothing or insufficient evidence of carcinogenicity.

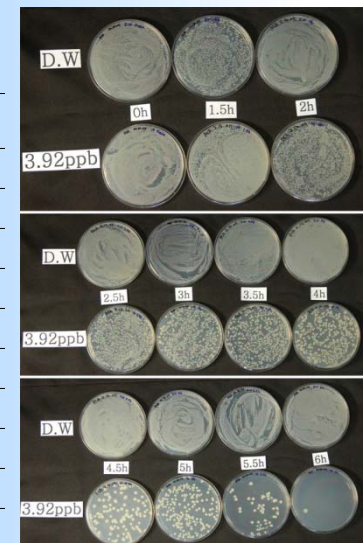
In Korea, in April 1998, the Korea Institute for Biological Safety also conducted an acute oral toxicity test, ophthalmic membrane stimulation test, and skin irritation test of silver ion water. Test results shows that it is a safe substance with no side effects at all. Silver toxicity, It occurs when using AgNo3 and AgCl according to Handbook on Toxicology of Metals. On the contrary, if silver exists in a metal form, it is not toxic at all.

WACO's 99.99% silver electrode plate of SIS generates under 50ppb of silver ions is permitted with the Environmental Protection Agency(EPA)'s law of water sterilization(under 100ppb) thus eliminate all kinds of bacterial, microbial colon and other contaminants Existing in water safely. The SIS in-line sanitizer is easy-to-install, has an extremely long lifespan and cost-effective to customer.

SIS TEST

Germ amount unit : 100

Germ	X.campestris	Pseudomonas syringae pv. Morsprunorum			Pseudomonas spp.	E.Coli(JM109)	Bipolaris coicis	Saccharomyces
	(ASJ1)	MSW2	MHS2	MJA5	peach			Cerevisiae H1515
	10ppb	10ppb	10ppb	10ppb	10ppb			10ppb
0 min	912	1735	1272	1218	2756	860	234	59
10 min	576	1036	1360	1290	1586	127	205	0
20 min	23	70	856	1072	996	8	166	0
30 min	0	3	49	478	95	0	172	0
40 min	0	1	0	514	0	0	154	0
50 min	0	0	0	40	0	0	121	0
60 min	0	0	0	5	0	0	103	0
Temp.	30°C	30°C	30°C	30°C	30°C	30°C	30°C	30°C



POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

Instruction

4. Features



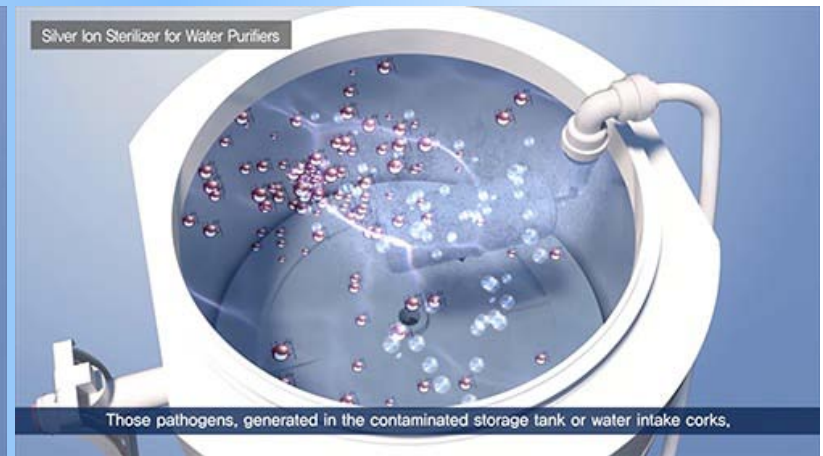
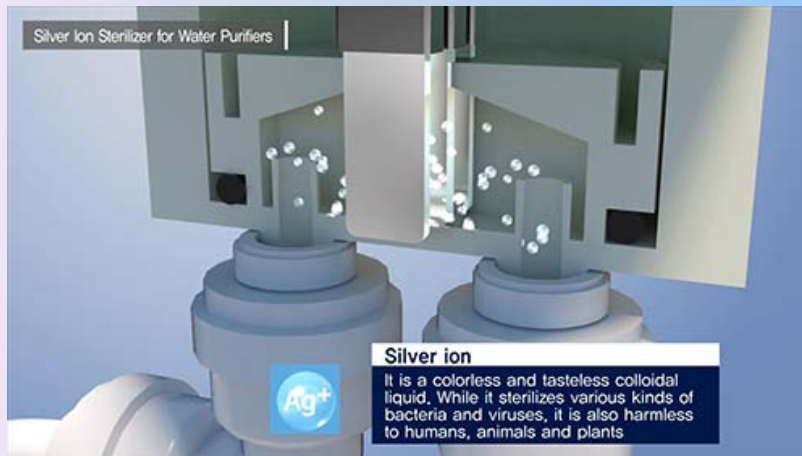
Model	SIS (Silver Ion Sterilizer)
Type	SR Type / SU Type
Operation	Constant-Current
Power	AC/DC Adapter(DC24V)
Output	0.5~6mA

What is SIS?

Delivering direct current(DC) to inner silver electrode plate(99.99%) to release optimal amount of silver ions, thus sterilize contaminants which located in flow path, water tanks and faucets.

Safety

WACO's 99.99% silver electrode plate of SIS generates under 50ppb of silver ions is permitted with the Environmental Protection Agency(EPA)'s law of water sterilization(under 100ppb) thus eliminate all kinds of bacterial, microbial colon and other contaminants Existing in water safely.

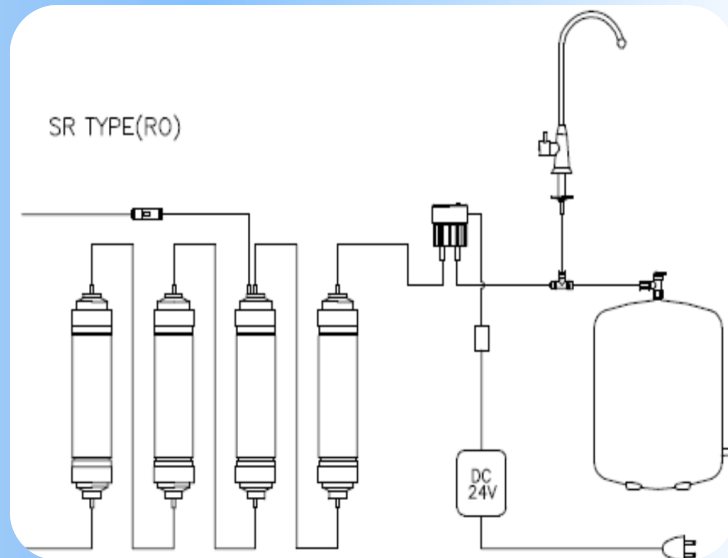
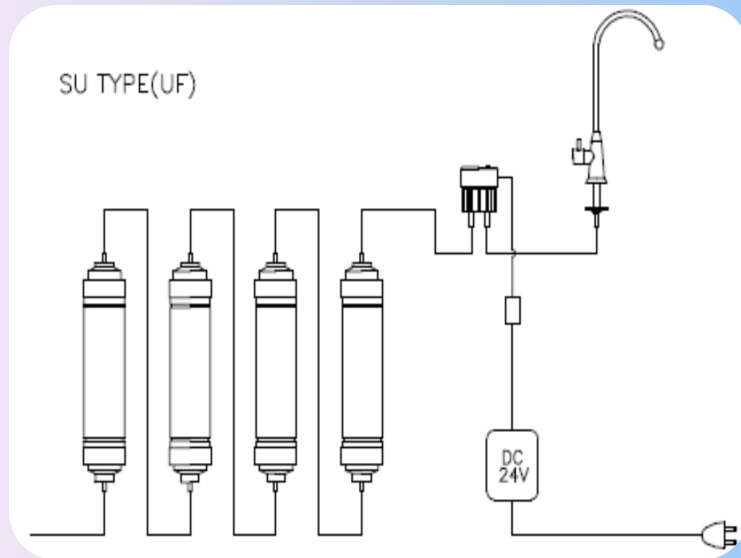


POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

Instruction

5. Easy to install

Easy to install by one touch fitting system.
Place a SIS between last stage of water filter and water tanks.



*The lifespan of SIS and amount silver ions are changeable depending on the water condition.

POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

Instruction

6. Automatic circulating sterilization system

Automatic self-circulating sterilization system

Electrolyzed disinfectant water that automatically sterilizes the water tank and inner flow path in the water purifier as well as the faucet through auto sliding sterilization



POU SIS Colloidal Silver Ion Sterilization (Patented No. : 20-0460122)

POU SIS(Silver Ion Sterilizer of POU)
Automatic Sterilization System

Providing pure and safe water



SIS SILVER
ION
STERILIZER

*With Silver's natural antiseptic, bacteriostatic,
and disinfectant power, delivery of silver ion by electrolysis*

Access link of instruction video clips of SIS
Google Drive

