USER MANUAL

Chlorine Dioxide Generator

MODEL：HFClO2-120

V 1.01

1. Overview

The chlorine oxide generator (generator) produces chlorine dioxide gas by electrolyzing sodium chlorite solution, which requires sodium chlorite ($NaClO_2$) liquid with concentration of 10% and distilled or pure water.

The electrodes of the generator are made of pure titanium and rare metal materials, and the purity of the chlorine dioxide gas can be 99.99%.

2. About The Safety.

Please read the following carefully before using.

2.1 Chlorine dioxide is a poisonous and flammable gas. It must be kept away from fire and the equipment room should be ventilated when using it.

2.2 The generator is a specialized chemical device, it should only be used by trained chemical/medical professionals.

2.3 When operating the generator, the operator should wear protective equipment, such as goggles, gloves, protective clothing, etc.

2.4 If you inhale chlorine dioxide gas, please drink a lot of soda water and seek medical attention ASAP.

2.5 If the liquid touches the skin or eyes, please immediately rinse with plenty of water and seek medical attention ASAP.

2.6 When the generator is working, it cannot be irradiated by sunlight.

2.7 The generator cannot be used together with the UV generator/ozone generator.

2.8 The generator cannot be moved during operation, otherwise the liquids in the cathode and anode chambers will be mixed.

2.9 The manufacturer is not responsible for damage caused by the use of incorrect methods.

3. About Product Preservation

The generator needs to be stored in the indoor of 5-50°C and protected from light, prohibiting high temperature and freezing.

The generator has an ionic membrane inside, it is required to be kept in moist condition, so when the generator is out of work, you need four steps:

3.1 Clean the inside of the electrolysis chamber with clean water.

3.2 Fill the cathode chamber and anode chamber with 20-50ml distilled or pure water to keep them moist.

3.3 Tighten the caps of the cathode chamber and anode chamber.

3.4 Use the closed hose (the shortest hose) to connect the anode chamber's air inlet and ClO_2 gas outlet to seal the anode chamber.

4. Main Technical Parameter

Input Power：AC 100~240V 50/60Hz

Rated Power：15W

Working Voltage：DC4.5~6.0V

Working Current：DC 0.1~2.0A

Dimension ：110×95×130mm（L*W*H）

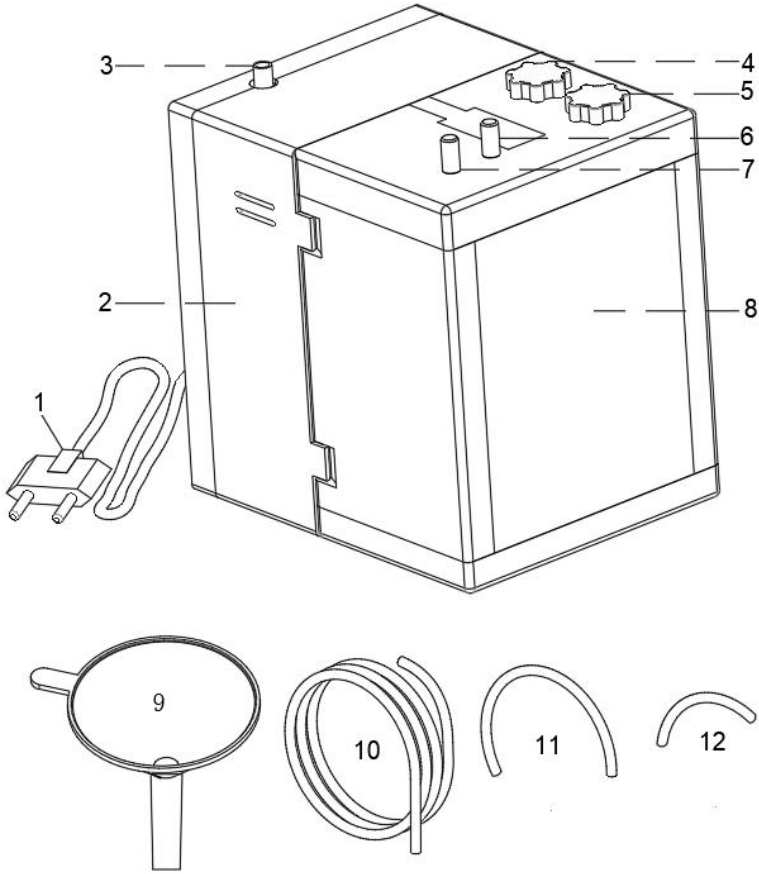
Volume of Anode-Chamber：120ml

Volume of Cathode-Chamber：120ml

Solution of Anode-Chamber：10% Sodium Chlorite($NaClO_2$) Solution

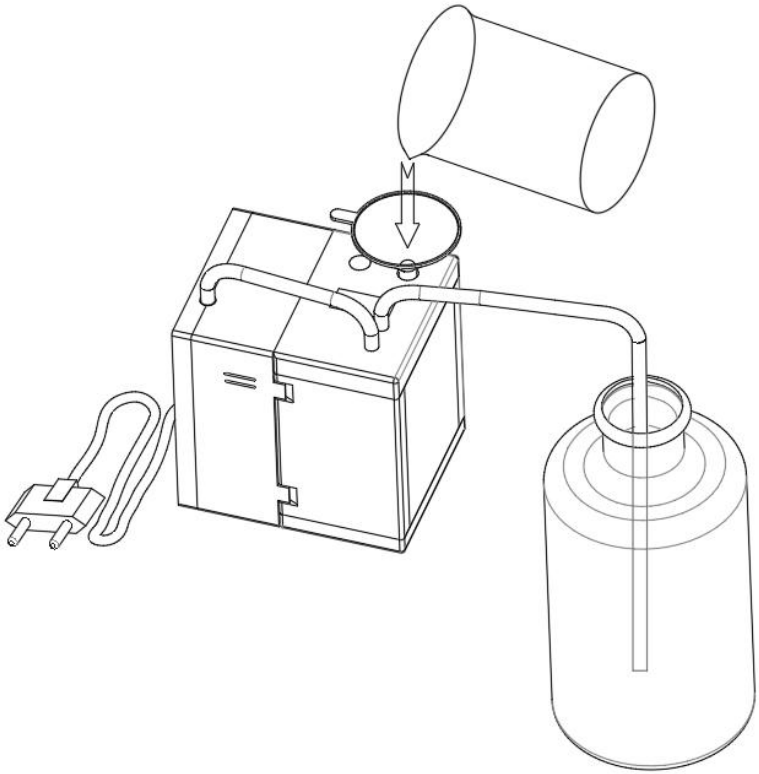
Solution of Cathode-Chamber：Distilled or Pure Water

5. Parts of the Generator



Code	Name	Function
1	Power Plug	AC100-240V 50/60Hz
2	Electrical Part	Including Power Supply & Air Pump
3	Air Outlet of Air Pump	Air For Anode Chamber
4	Water Injection Port	Water For Cathode-Chamber
5	Sodium Chlorite Injection Port	10% Sodium Chlorite Solution For Anode-Chamber
6	Chlorine Dioxide Gas Outlet	Chlorine Dioxide Gas Output into the Absorption Bottle
7	Air Inlet	Air Pump's Outlet is Connected to Air Inlet.
8	Electrolyzer	Electrolyzer Contains Anode Chamber & Cathode Chamber
9	Funnel	For Easy Addition of Water and Sodium Chlorite Solution.
10	Long Hose	Connect The Chlorine Dioxide Gas Outlet to The Absorption Bottle
11	Middle Hose	Connect The Air Outlet of Air Pump to the Anode Chamber's Air Inlet
12	Closed Hose (Shortest Hose)	For Closing The Anode Chamber's Air Inlet And ClO_2 Outlet

6. About Installation and Operation



6.1 The chlorine dioxide generator must work in a laboratory or a dedicated workshop.

6.2 The laboratory or workshop must be ventilated because some chlorine dioxide gas will be released into the air.

6.2 The operators must wear gloves/mask/goggle and in physical protection.

6.3 You need a glass bottle with V≥1500ml and it should be tall/skinny/small opening shape as the chlorine dioxide absorption bottle for the generator.

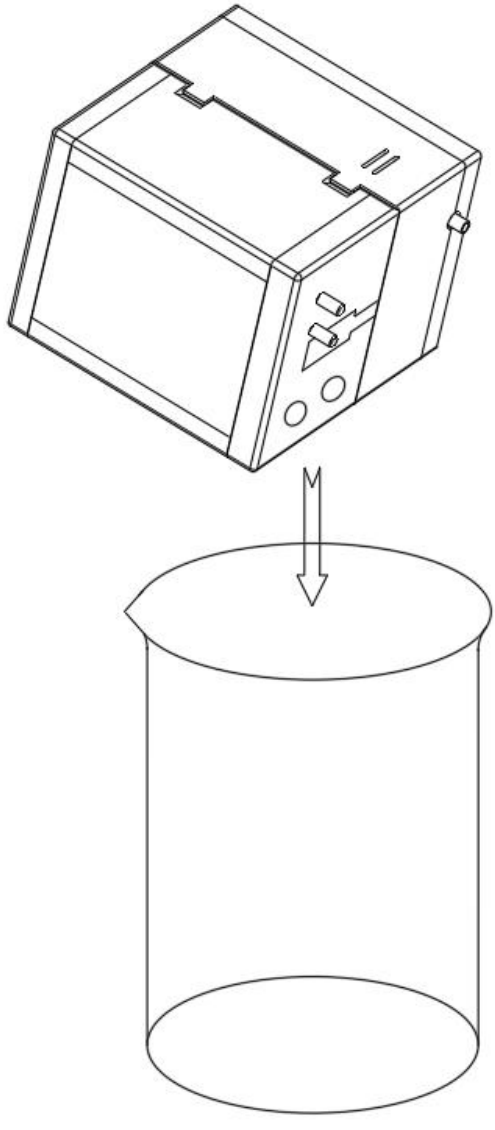
6.4 Add 1000ml distilled water or pure water (≤30℃) to the glass bottle.
6.5 Use the medium-length hose to connect the air outlet of the air pump to the air inlet of the anode chamber.
6.6 Connect the ClO_2 outlet to the chlorine dioxide absorption bottle with the longest hose. The hose must be inserted into the bottom of the absorption bottle. When using it for the first time, the hose may not be easily inserted into the inlet/outlet port. Put the end of the hose into the water to make it moist and lubricated for an easy insertion.
6.7 Put both the chlorine dioxide generator and the glass bottle on a safe table so that they will not fall.
6.8 Use the funnel to add 100-110ml of distilled water or pure water (The Mark: Water) to the cathode chamber.
6.9 Use the funnel to add 100-110ml of 10% sodium chlorite solution (The Mark: Sodium Chlorite) that has been completely dissolved into the anode chamber.
6.10 The anode chamber and cathode chamber are sealed with caps, which must be tightened.
6.11 Plug in the power supply and start working, please pay attention to observe the absorption bottle, there will be continuous air bubbles.
6.12 During the working process of the chlorine dioxide generator, the color of the liquid in the anode chamber will change: Colorless and Transparent - Dark (Brown) - Light Yellow.
6.13 When the color of the liquid in the anode chamber gradually fades from dark (brown) to light yellow, it means that the active ingredients of the sodium chlorite solution in the anode chamber have been completely consumed, and the generator must be stopped.
When the sodium chlorite solution is consumed, the generator cannot continue working for long time, otherwise this will shorten the life of the electrode.
6.14 Different working time can obtain chlorine dioxide liquid with different concentrations.

Working Time	Concentration of ClO2 Solution
20mins	500+mg/L(ppm)
30mins	1000+mg/L(ppm)
60min	1500+mg/L(ppm)
90mins	2500+mg/L(ppm)

6.15 You can get different concentrations with different working time, if you don't need high concentration chlorine dioxide solution.

6.16 You can obtain lower concentrations by diluting the chlorine dioxide liquid in the absorption bottle, if you do not need high concentration chlorine dioxide solution.

7. About Cleaning and Preservation.



7.1 Operator must wear gloves/mask/goggle and take physical protection.
7.2 You need to prepare a beaker (V≥500ml) for collecting the waste liquid.
7.3 Unplug the power supply.
7.4 Please remove the chlorine dioxide absorption bottle and save the chlorine dioxide solution first.
7.5 Remove all hoses and clean them.
7.6 Unscrew and remove the caps of the anode and cathode chambers of the generator.
7.7 Holding the generator in hand, pour the liquid in the anode and cathode chambers into the beaker.
7.8 After pouring out the liquid in the generator, use the funnel to inject clean water into the anode and cathode chambers , and then pour them into the beaker again. The purpose to clean the electrodes and membrane of the generator.
7.9 When the cleaning is completed, add 20-50ml distilled or pure water into the anode and cathode chambers, then replace and tighten the caps of the anode and cathode chambers.
7.10 Use the closed hose (shortest hose) to connect the air inlet and chlorine dioxide gas outlet to keep the anode chamber closed.
7.11 Arrange all accessories, put the generator and accessories back in the box, and store it properly.
7.12 To keep the earth environmentally friendly, please dispose of waste liquids in accordance with local laws.

8. About Maintenance

8.1 Keep the anode and cathode chambers of the generator moist;

8.2 If the generator does not work for more than 1 month, please check the water inside, if it has evaporated, please add water again;

8.3 When there is scale or dirt inside the electrolytic cell, it can be soaked in 3%-5% hydrochloric acid for 15-30 minutes, then add clean water and pour it out to remove the scale.

8.4 After cleaning, please add 20-50ml distilled or pure water again, and seal the electrolyzer with the closed hose and caps to keep its interior moist.

8.5 The generator is the product with electronic circuit, please keep the electronic part dry.

9. FAQ

Q: What concentration of sodium chlorite solution?

A: 5%-15% Concentration Sodium chlorite solution can work normally, but the optimal concentration of 10% is recommended.

Q: The concentration of sodium chlorite solution less than 5% can be used?

A: The concentration of sodium chlorite solution less than 5% may reduce the service life of the anode.

Q: The concentration of sodium chlorite solution higher than 15% can be used?

A: The concentration sodium chlorite solution higher than 15% will overload the power supply, and long-term use will cause damage.

Q: What kind of water is suitable for the generator?

A: Both distilled water and pure water are suitable.

Q: Can the generator keep working without stopping?

A: When the active ingredient of sodium chlorite in the anode chamber is exhausted, the generator must be stopped. If it continues to work, it will reduce the service life of the electrode.

Q: What power input is suitable for the generator?

A: The generator can be applied to AC100-240V 50/60Hz single-phase input.

10. Statement

The product specifications and technical parameters of the user manual are only used as a guide.

Unless there is a special agreement, all the information stated in the user manual does not constitute any form of guarantee.