

## FREQUENTLY ASKED QUESTIONS ABOUT RAINFRESH UV SYSTEMS



- A) UNDERSTANDING UV SYSTEMS
- B) INSTALLATION, SIZING QUESTIONS
- C) MAINTENANCE QUESTIONS
- D) TROUBLESHOOTING QUESTIONS
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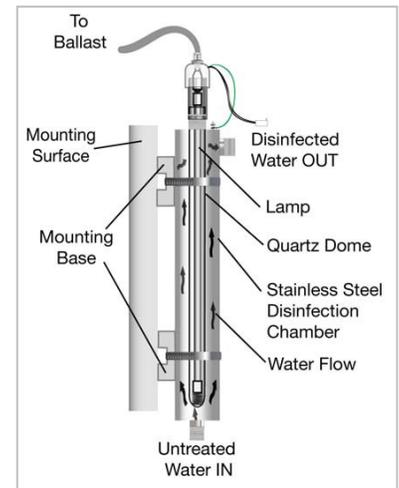
### A) UNDERSTANDING UV SYSTEMS

#### Q What does the Rainfresh UV System do? Will it clean up my water?

UV systems disinfect water by inactivating bacteria, coliform (such as E. coli), viruses etc. UVC light at a wavelength of 254nm disrupts the DNA of microorganisms preventing them from multiplying. This makes water safe to drink from virtually any potable source.

#### Q How does the Rainfresh UV system work?

The Rainfresh UV system consists of a low-pressure UV lamp enclosed in a transparent quartz dome, housed in a stainless steel disinfection chamber. As untreated water enters the chamber from one end, microorganisms like bacteria, viruses, fungi, algae etc in the water are exposed to ultraviolet light being emitted by the UV lamp. The UV light kills/inactivates these microorganisms instantaneously and treated water flows out of the chamber and is ready for consumption.



#### Q) Does a UV system add anything to the water?

Rainfresh UV systems use chemical-free and environmentally responsible technology that does not require use of any chemicals. UV systems do not alter the water quality, other than disinfection.

#### Q) Can I drink the water after it has been treated by a UV.

Yes you can drink the water, if the water is otherwise of potable quality. The UV system will make the water safe to drink from a microbiological safety point.

### B) INSTALLATION, SIZING QUESTIONS

#### Q Can I install a UV system if I am on well, lake, cistern or river water?

Yes. Rainfresh UV systems are designed to be used on water from any source. However other water quality parameters such as tannin, organic colour etc can significantly reduce the efficiency of the UV system. You may have to treat the water before it is disinfected by the UV.

#### Q What kind of water quality is required for the UV system to work efficiently?

The unit should only be operated with water that meets the following minimum criteria:

- **Turbidity/Suspended Solids:** Water should not have any dirt as microbes hide behind dirt particles and get shielded from UV light. Therefore water should have turbidity of less than 1 NTU (Nephelometric Turbidity Unit). This can be achieved by installing a 5 micron sediment filter before water enters the UV. We recommend Rainfresh Model FC150 or FC100 (5 micron sediment filter and housing assembly) or high flow filter housings (BH010 or BH020). If the water has abnormally high turbidity, a back-washable multi-media filter is recommended.

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- **Hardness:** Less than 7 gpg (120 mg/L). Hard water causes scale build-up on the quartz sleeve thereby reducing the UV transmittance in the water and in turn reduced performance. For high hardness water, a water softener should be installed prior to the UV system.
- **Iron & Manganese:** Iron less than 0.3 PPM (mg/L) and Manganese (less than 0.05 mg/L) is desirable. At higher concentrations, a suitable water conditioner (e.g a greensand filter) should be installed prior to the UV system to prevent iron build-up on the quartz dome.
- **Tannins and Colour:** Water with tannins or colour has low UV transmissivity that reduces UV system performance. A tannin-removal / colour-removal activated carbon system should be installed to improve UV performance.

**Q How do I know what my water quality is?**

You can send a sample of your water to our test lab for a no-charge analysis of your water. The link to details on how to send the sample is at the bottom of the UV information page. Our lab can test for hardness, iron, UV transmissivity, pH, Turbidity and Total Dissolved Solids

**Q If I find that I need additional treatment such as softener or tannin filter, where can I buy that?**

You can order these systems directly from Rainfresh at factory prices. Please call us for details.

**Q Is a sediment filter necessary before the UV?**

Yes. Regardless of your water quality, a sediment filter should be installed before a UV system

**Q Can I install the UV before the pressure tank?**

No. UV systems should always be installed as the LAST stage before water gets divided into hot and cold. Never install a UV before any storage tank.

**Q Can I install the UV horizontally?**

Although we do not generally recommend horizontal installation, it can be done if there is no other way. There are 2 limitations with horizontal installation. First, it is not easy to drain the unit to winterize it and secondly you will have to be more careful when removing the dome for cleaning as chances of breaking it are greater.

**Q Should the UV be installed before, or after, a water conditioner?**

UV should be the last stage of treatment. It should always be AFTER any water conditioners.

**Q How do I know what size/model of UV unit to buy?**

There are 3 Rainfresh UV models.

R519 – 5 US GPM (19 litres per minute)

R830 – 8 US GPM (30 litres per minute)

R1245 – 12 US GPM (45 litres per minute)

All models are based on the max water flow at which the UV system can disinfect the water. While water flow rate depends on your pump capacity and pipe size, as a rule of thumb, you can select the UV system based on the number of bathrooms as follows

Number of Bathrooms in Your Home	1-2	2-3	3 or more
UV Model	R519	R830	R1245

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To make sure that the water flow rate never exceeds the rated flow of the UV unit, you can purchase Rainfresh flow control kits that can be easily attached inline before the UV without solder. Please contact customer service for these flow control kits.

**Q Does a UV light consume a lot of energy?**

No, a UV system consumes only 28 – 63 Watts, depending upon the model. This is as much or less than a 60W bulb.

**Q Does the UV light stay ON all the time? Can I not turn it OFF when I don't need water?**

Yes the UV light stays ON all the time, even when you don't need the water (e.g. during the night). Repeated ON/OFF actually shortens the UV lamp life. However, if you are going away from the house for a week or so, you can turn the UV system OFF. In this case first turn OFF the supply valve before the UV and then turn the UV off. Upon return, first turn the UV system ON, wait for about 10 minutes and then flush the water for a few minutes prior to consumption

**Q Do I need a surge protector for my UV system?**

Yes. You should never install the UV without a surge protector. A CSA or UL certified surge protector rated for a clamping voltage of less than 400 Volts, response time of less than one nanosecond, and energy absorption of at least 1,000 Joules.

**Q Can I plug in the UV on the same circuit as my pump?**

You should never install the UV on the same circuit as the pump as that can destroy the ballast. The UV should be installed on a dedicated circuit only.

**C) MAINTENANCE QUESTIONS**

**Q Do I have to replace the UV lamp? Why?**

The UV lamp degrades over time and after 9000 hours (approx 1 year) of use, its killing ability drops to levels that are considered unsafe. Therefore the UV lamp must be replaced once a year even though the UV lamp continues to light up.

**Q How do I know when to replace the lamp?**

Rainfresh UV systems have a built-in alarm feature that signals end of lamp life by a flashing red LED and an intermittent beep. You can silence the alarm for 1 week three times to allow yourself time to purchase and install a new lamp. After that, the alarm cannot be shut off until the lamp is replaced.

**Q Is there any other maintenance that is required?**

You should routinely check the quartz dome and clean if scale has formed. The dome should also be replaced every 3 years. Also replace sediment filters regularly.

You should also replace the dome "O" rings whenever you replace the bulb.

**Q Is there a need for me to test the water for bacteria now that I have a UV installed?**

It is recommended that you continue to monitor your water safety through regular testing at least 2-3 times a year, even though you have a UV system.

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## D) TROUBLESHOOTING QUESTIONS

### Q My UV system is beeping? What does that mean?

If the beeping is intermittent with the green LED ON and a flashing red LED, then it is a lamp-replacement alarm. You can silence this alarm for 7 days by pressing the black button on the ballast. Install a new lamp as soon as possible and reset the timer (instructions are included with the lamp).

### Q I just replaced my lamp, but the beeping hasn't stopped. What do I do?

You have not correctly reset the lamp timer. The lamp-change timer is reset by depressing the timer button while reconnecting ballast to electrical outlet and keep the button depressed until the ballast emits a solid three-second beep. This will re-set the lamp-change-timer to zero and the 3-second beep will confirm that the re-set was successful.

NOTE : It is not possible to reset the lamp-change-timer unless the timer is in the grace period or lamp-change alarm mode or lamp-failure mode.

### Q The UV is beeping, the UV lamp & green LED is OFF and red LED is ON. What's wrong?

If the power to the UV goes beyond its operating limits, the ballast will shut down to protect itself from unsafe power. To correct the problem, simply unplug the unit, wait for 15 seconds and re-plug it.

### Q I am getting a high-pitched squeal from the ballast and no light is ON. What is wrong?

Power surges may have destroyed the ballast. Contact customer service.

### Q Why does the water seem hot first thing in the morning?

Sometimes over period of non-use the UV lamp heats up the water in the UV chamber. Simply flush a toilet first thing in the morning before using the water in the sink or showers.

## E) MISCELLANEOUS QUESTIONS

### Q Are Rainfresh UV systems tested?

Rainfresh residential UV systems are tested and certified by CSA International to CSA B483.1 for material safety and structural integrity. They are also independently tested for microbiological inactivation. Rainfresh also manufactures UV systems certified to NSF/ANSI Std 55A. Please click on the link at the top of the UV page for more info on these systems.

### Q) Where are Rainfresh UV systems made?

Rainfresh UV systems are made in Canada.

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