

How to use Photochemical Reactor?

1. Make ready all the equipment's required during the photochemical reaction.
2. Fill the chiller tank with water via inlet connection and ensure that it is fully filled.
3. Start the main switch. Meanwhile, in the background, chiller start automatically.
4. Place magnetic stirrer inside the cabinet.
5. Make sure that both electrical connections which provided inside the safety cabinet chamber are working and then connect magnetic stirrer to one of the given electrical connection.
6. Place triple walled jacketed reactor over a magnetic stirrer and connect with inbuilt reactor holder with the nut and bolt.
7. Place magnetic needle into the reactor and check with a stirrer, whether it is revolving properly or not. Sometime researcher has to adjust the position of the reactor on the stirrer to fix the proper revolving position.
8. Fill reactor with suitable photosensitive chemical or photocatalyst through one port provided at the side of the reactor.
9. Other two port of outer borosilicate reactor use as a gas inlet and outlet as per use. Otherwise, it is closed properly with Teflon fitting and make it air tight to avoid leakage.
10. Attached cooling water inlet and outlet to double walled inner quartz immersion well for cooling water circulation.
11. Now place UV or Visible lamp of required capacity inside the double-walled quartz reactor.
12. Then connect the UV lamp male-female connections which mount at the top.
13. Now closed the door and locked it with the provided key.

14. Please note that when the door is open, the lamp does not start in any condition. Our R&D team invented the fully automated system to avoid direct UV exposure.

15. Once again ensure that all the above steps have performed.

16. Now press the button and start water circulation pump to ensure the exact temperature of the inbuilt chiller.

17. Once the chiller's temperature reaches around 20 0C, the researcher can switch on the UV lamp.

18. There are two ways to operate UV lamp action. a. Timer b. Manual

19. UV lamp lights by pressing switch given on the panel. If a researcher wants to run reaction for the particular time, then he can achieve the same with UV lamp timer.

20. Set the required time in timer and press "Start" button. The lamp automatically switched off when it ended fixed period. The set time is given in minute, in which researcher set it to max 9999 minutes.

21. Digital Voltage meter on the panel shows the operating voltage of the complete setup.

22. There is 4 point temperature indicator on the panel, having its points like CH1, CH2, CH3 and CH4.

- a. CH1 shows water inlet temperature
- b. CH2 shows water outlet temperature
- c. CH3 shows reactor chamber temperature, where the actual reaction is carried out
- d. CH4 shows safety cabinet chamber temperature

23. There is a set of 4 LED placed on the control panel having following indications.

- a. Red LED indicates when the door is open
- b. UV lamp Green LED indicates whether UV light is on or off
- c. Magnetic stirrer Green LED indicates the stirrers is working
- d. Chiller Green LED indication confirms the operation of the pump