

Checklist for PBR Operation / Maintenance



Daily

- Flow rate is as desired (for continuous culture) on the flow needle valve
- There are Nutrients in the bottles
- There are no “inexplicable” portions of the graphs (ie. pH drops, nutrient additions, etc...).
- Check for alarms on control software
- Look at density and growth rate to try and improve production
- Measure cell density manually (not required, but is helpful)

Weekly

- Check Optical Density sensor for Biofilm
- Fill Nutrient bottles
- Nutrients are able to enter tank (watch at least 1 dosing to ensure liquid enters)
 - If the tube going to the nutrient filters is swelling (ballooning) the nutrient filters need to be replaced. Nutrients should be pre filtered to save cost on nutrient filters.
- Look at CO2 tank pressure and plan for replacement if needed
- Check Chiller cistern for missing water
- Check water flow into tank, and replace filters if flow drops below 0.5l/min

Monthly

- Check UV bulb on header tank is illuminated
- Check harvest pump tube for signs of wear and replace if needed
- Check pH calibration for difference between displayed and actual measured outside the culture
- Check that nutrients are being dosed evenly (bottles emptying at same rate)
- Check header for debris/biofilm, clean if dirty
- Check harvest pump calibration

Quarterly

- Replace Harvest pump tubing (look for cracking and other signs of wear) - there is a working timer on the CPU for replacement
- Nutrient Pump Tubing - check volume calibration
- Replace nutrient filters
- Check all LED panels are Evenly illuminated

Annually

- Replace pH probe (1 yr shelf life)
- Replace all filters (if not recently replaced)
- Replace UV bulb
- Replace Nutrient pump tubing
- Replace silicone tubing
- Validate flow rate on Manual Water Flow Valve
- Tighten screws in control box (GFI and Solid State Relays)
- Replace PLC battery ([CR2354](#))