Eco-Bubble



Airlift Photobioreactor

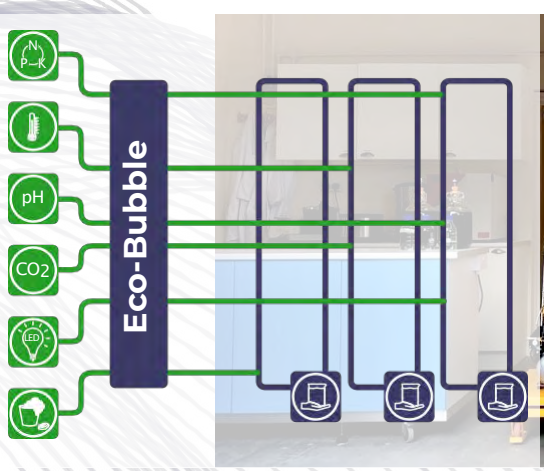
Varicon Aqua are specialists in the design, construction and deployment of algal growth platforms. With **over 40 years of experience** and over **400 photobioreactor systems** deployed across the globe we are recognised as global leaders in the sector. Our close client engagement and supply chain relationships allow us to provide bespoke photobioreactor and cultivation systems for a broad range of applications; we have provided systems ranging in scale from **5 litres to 400,000 Litres**.

Our key algal growth platforms are represented within the **Phyco-™** line including the **Phyco-Flow™**, **Phyco-Pond** systems, **Phyco-Lift**, and **Phyco-Bubble**, each designed to meet specific needs and deliver optimal results in algal cultivation.

The **Eco-Bubble** range of photobioreactors are ideally suited to laboratory and inoculum production. The **Eco-Bubble** system is comprised of a tube of 2m in length, with a total volume dependent on the diameter (60-370 Litres). The system is fabricated in tough PMMA tubing with excellent light transmission, top and bottom connections are made from PVC. Lights and control system are mounted on a light-weight aluminium frame. A variety of ports for inlet/outlet and sensors can be located on the base. The Eco-Bubble systems are mixed by aeration from the PVC base, providing a turbulent high mass transfer environment, whilst significantly reducing mechanical shear.

Eco-Bubble outline and options

All Eco-Bubbles can be equipped with the VAS control unit, and a range of sensor or lighting options to improve cultivation conditions.







Specifications and performance

Physical Considerations	
Volume/Height	60-370 L / 1-2 m (2 m standard)
Tube OD	0.2-0.5 m
Shape	Single tubular, mounted
Mixing	Aeration
Electricals	Lighting array, aerator, optional VAS unit

Example Performance (details of other species available)	
Algae	*Chlorella sorokiniana* (species)
Density	0.5-1 g L^{-1}
Productivity	0.05-0.15 g L^{-1} d^{-1}
Max yield	1 g L^{-1}
dO_2	≤ 150 %

Engineering Performance (in house data)	
Liquid	0.1-0.2 m s^{-1} (max - velocity)
Reynolds	≥10 k (number)
Maximum	2,000 µ E m^{-2} s^{-1} (light)
Temperature	10-45 °C
Mass	~0.05 s^{-1} (transfer coefficient)

Eco-Bubble configuration



Algae Production

In addition to our photobioreactor systems we also specialise in providing the auxiliary equipment for process monitoring and control, LED solutions and downstream processing. As a one-stop shop for algae production we have a full range of nutrient mixes from our **Cell-Hi** All-in-One line.

MAKING ALGAE EASY

Our guarantee

As with all Varicon Aqua systems we pride ourselves on the high level of after sales support we provide to our clients whether it's a systems issue or a technical production question. We are highly approachable. Come talk to us about your needs.

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