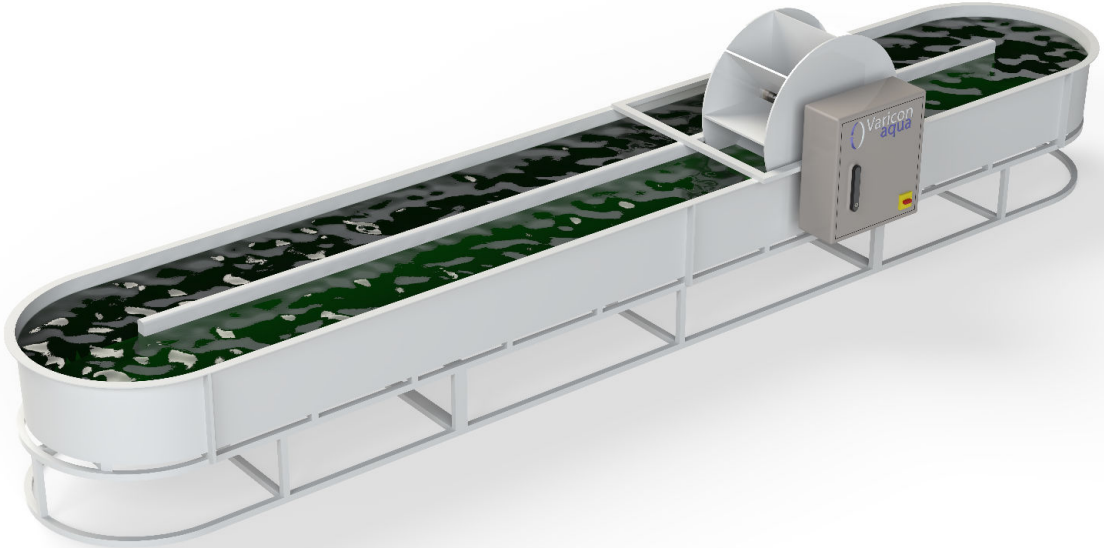
Phyco-Pond™

Open Pond Photobioreactor



MAKING ALGAE EASY

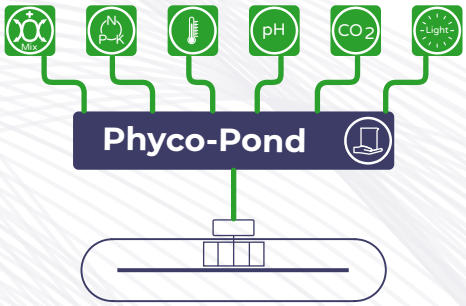
Varicon Aqua are specialists in the design, construction and deployment of algal growth platforms. With over **30 years of experience** and **over 350 photobioreactor systems** deployed across the globe we are recognised as global leaders in the sector. Our close client engagement and supply chain relationships 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.**

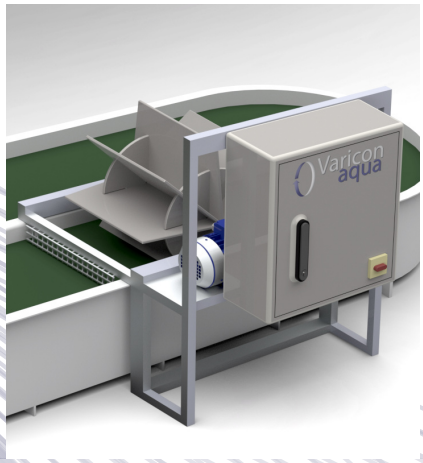
Our key algal growth platforms are represented within the **Phyco-™** line including the **Phyco-Flow™**, **Phyco-Pond** systems, **Phyco-Lift**, and **Phyco-Bubble**, each designed to meet specific needs and deliver optimal results in algal cultivation.

The **Phyco-Pond** is a high-rate algal open pond (HRAP). The **Pond** is manufactured by Varicon Aqua according to optimised geometric considerations which impact rate of mixing, photosynthetic efficiency, power consumption and biomass yield. Smaller systems (0.1-1 m3) are fabricated from a fibreglass mould, whilst larger systems (>1 m3) comprise of a levelled and compacted solid matrix, onto which a steel support structure and impermeable geotextile is overlaid. The process flow is mixed via a motorised paddle wheel with adjustable speed, ensuring homogenous delivery of light, nutrients and carbon dioxide.

Phyco-Pond outline

All Phyco-Pond's has a variable motor speed controlled paddle wheel to ensure the correct mixing of the media and optimal exposure to light.







Specifications and performance

Physical Considerations	
Volume	0.1-500 m^3
Height	0.3-0.4 m
Shape	Optimised raceway (length-width-height)
Mixing	Paddle wheel
Electricals	Motor

Example Performance (details of other species available)	
Algae	*Chlorella sorokiniana* (species)
Density	0.1-0.3 g L^{-1}
Productivity	0.01-0.08 g L^{-1} d^{-1}
Max yield	0.35 g L^{-1}
dO_2	≤ 200 %

Engineering Performance (in house data)	
Liquid	0.2-1 m s^{-1} (max - velocity)
Reynolds	≥10 k (number)
Maximum	2,000 µ E m^{-2} s^{-1} (light)
Temperature	10-40 °C
Mass	~0.002 s^{-1} (max transfer coefficient)

Phyco-Pond 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!

Contact: variconaqua@variconaqua.com - www.variconaqua.com

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