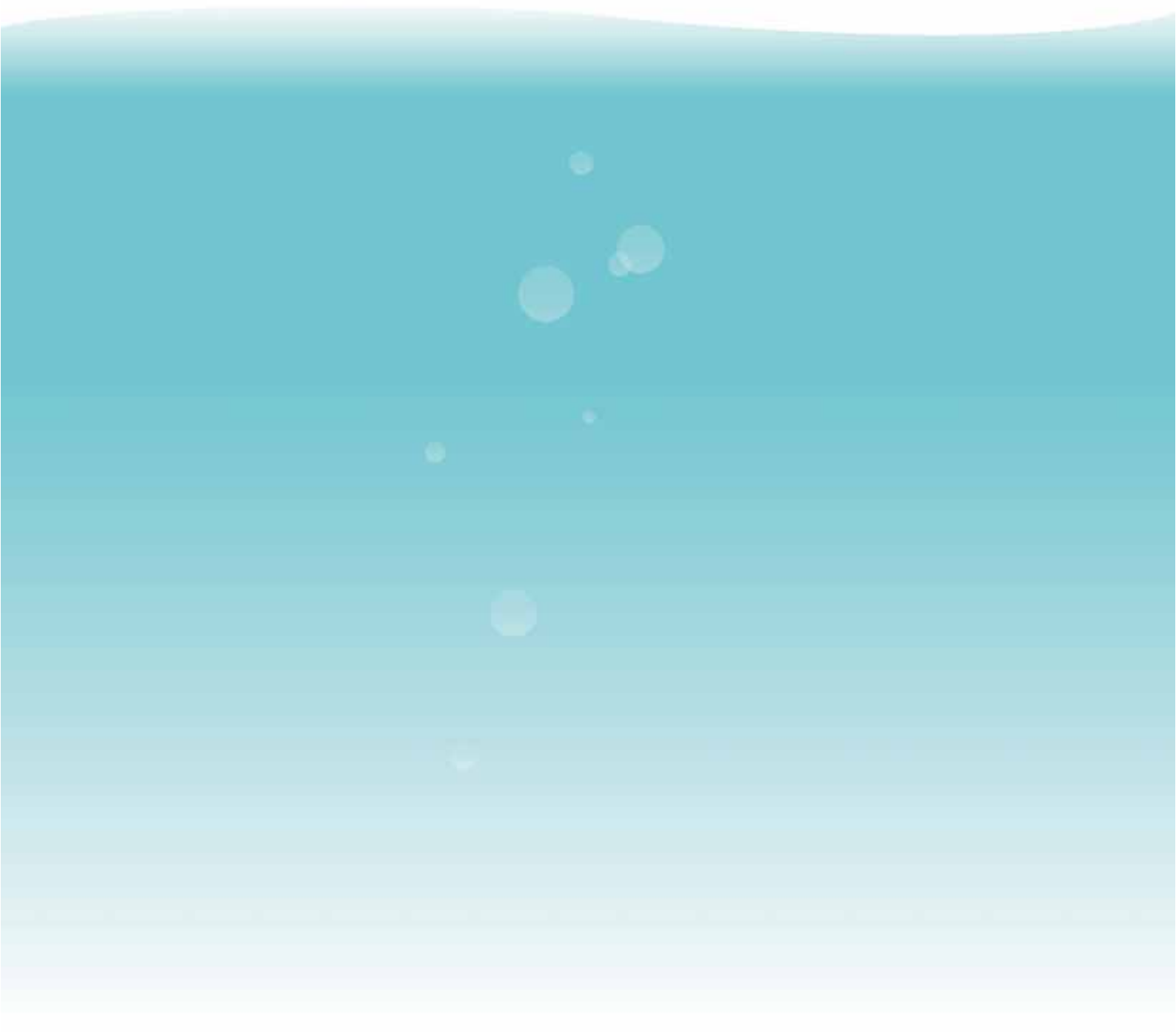








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Lumen AQUA



Why LumenAQUA?

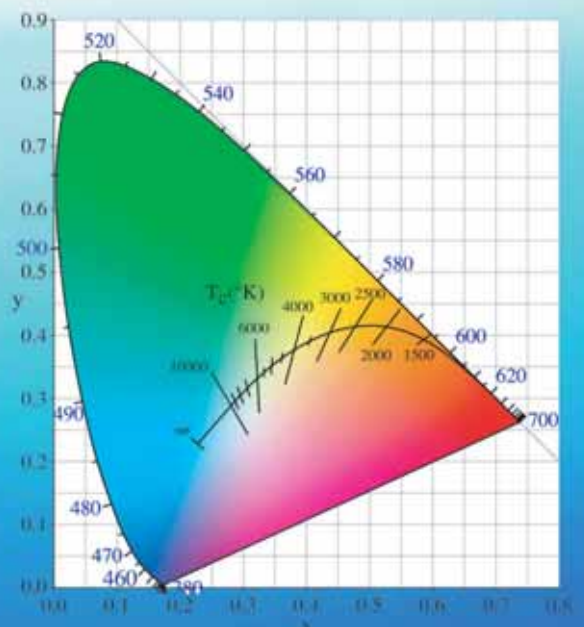
-  Utilizes high brightness LED, saves energy, has an extended longevity, outputs low temperature, and, with the addition of a patent optical layer, can enhance the LED light and uniformly distribute the light source into the aquarium.
-  Able to adjust to any color for the entire spectrum of light to meet the demand of the aquatic life forms.
-  Meticulously engineered with a thermally efficient aluminum material and a high rotational fan to remove any problems formed with overheating issues.
-  Adjustable RGB LED illuminative lights:
 - 1) Change the color of the aquarium according to the mood of the user with a specific color.
 - 2) Alter the wavelength to optimize the cultivating conditions of the aquatic life forms.
 - 3) Modify the LED to reflect vibrant colors off the fish scales of fluorescent fish, or arowana, etc.
-  Traditional light source can affect the surface temperature of the aquarium, but LumenAQUA utilization of LEDs has minimal affect due to lack of temperature produced from the LED light.
-  Protect the Earth from pollution! The regular light tube has traces of mercury coated on to its components and after discarding it, the bulb becomes a harmful pollutant to the Earth. LumenAQUA uses LEDs as its light source and it has no trace of mercury anywhere.

COLORCON





 ColorCon, or ColorControl, is a touch-sensitive color changing unit that alters the color temperature of the LED light when touched for a period of time. The color temperature changes from 5,000 K to 7,000 K (warm white to cool white). Also built into ColorCon is an on and off switch that is accessed with a simple touch of the finger.

CIE Color Temperature



TRIO

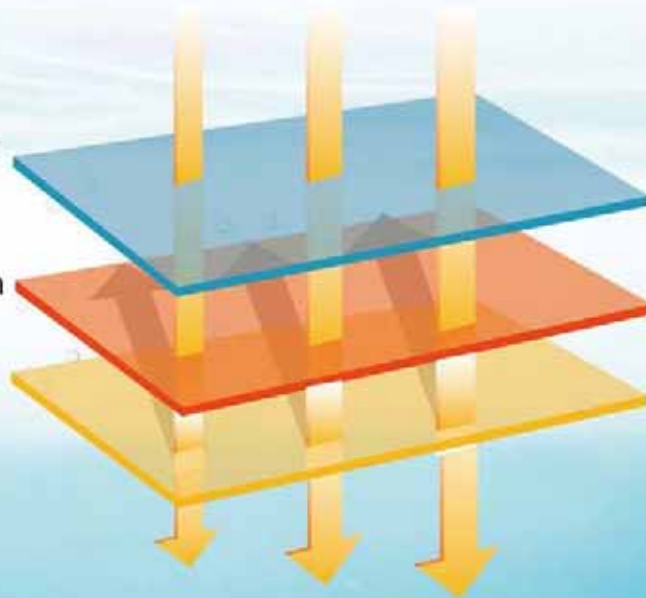
 **TRIO** (Tri-Optical Layers) is a patented optical filtering system developed by Prodisc. It can reduce the affects of utilizing multiple LEDs within a lighting system to output a more linear light source.

 **TRIO** system can also minimize the glare while maintaining LEDs superior high luminance even after filtering the light. The first filter of **TRIO** system enhances LEDs' light sources and increases the luminance efficiency. The second layer can absorb the light from filter and transform it into a linear light source. The final stage can reduce the glare produced by the LEDs creating a softer and user-comfortable lighting environment.

Luminance Enhancement

Radial Transformation

Glare Reduction



Comparison of Aquarium Lighting



Fluorescent Lamp:

- Contains mercury
- Incomplete spectrum profile
- Expensive specialized lighting for aquatic cultivation.
- Insufficient illumination intensity
- Degradation of the light is quick (After 3000 hrs of use, 40% of illumination remains)



Incandescent Lamp:

- Complete spectrum profile
- Expensive
- High power consumption
- Infrared illumination radiates massive heat
- Illumination of ultraviolet rays is harmful to human skin and plant life






High Brightness LED Lamp:

- High illumination intensity
- Low energy consumption
- Exposed light produces minimal heat
- Wavelength of light is selectable
- Decay of the light is slow
- Lifetime of the light is long (10 times longer than fluorescent light)
- No harmful infrared and ultraviolet ray
- Has been used in the illumination market with a wide range of application (residential and commercial lighting, biological cultivation lighting and medical service industry)

COLORCON
Color Control

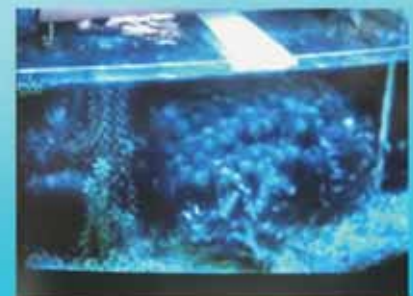
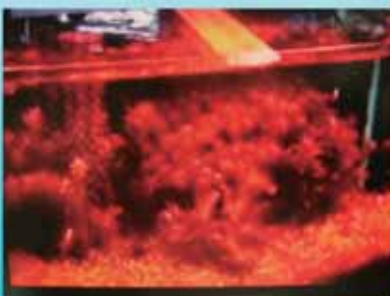


Relation between WAVELENGTHS and PLANT CULTIVATION










-  Plant photosynthesis occurs at a wavelength of 400 nm to 700 nm.
-  Certain wavelengths have greater influence on photosynthesis, 400 to 525 nm (blue color) and 610 to 720 nm (red color) are the biggest contributors to photosynthesis.
-  Wavelength between 520 to 610 nm (green color) has the lowest ratio in plant pigment absorption.

Source: "Photo Morphogenesis in Plant" by R.E. Kendrick and G.H.M. Kronenberg. (Published in 1986, Martinus Nijhoff)

In regards to the principles stated above, organic lighting that is sold in the market usually refers to two specific wavelengths, the red and blue wavelength. From a distance, the color of the light that exposed by the organic lighting is pink in color. While in existing white light LED, most utilize a blue color chip set with a coating of yellow phosphor and with this combination, white light is the end result. Therefore, the energy distribution of the white light has two distinct peaks at 445 nm (blue color) and 550 nm (yellowish-green color) but organic life also needs wavelengths at 610 to 720 nm (red color) and white light lacks this wavelength. This is the reason why white light LED is not advantageous for organic life cultivation.



Specification

-  Highest Illumination: Approximately 2400 lux (50 cm from the surface to the bottom of the tank)
-  Color Temperature: 0 to 20,000 K
-  Dimension: 90 cm (L) X 20 cm (W) X 10 cm (H)
-  Power Consumption: 72 Watts (24 LED at 3 Watts/LED)
-  Input Power Source: 100-240 V, 50-60 Hz, 2.5 A
-  Output Power Source: 19 V, 7.89 A
-  etouch (patent) and ColorCon (patent)
-  TRIO Optical thin film technology (patent)
-  LumenAQUA is suggested to be equipped for a standard 3-foot aquarium

