PUROXI "THE BEST WATER SOLUTION"

PURE WATER GLOBAL INC.

CLEAN, CLEAR & NUTRITIONAL WATER

To Whom It May Concern,

I am writing you to let you know about an innovative new product that could assist in your waste-water management. The LilyPad © is a floating pad, containing the same patented photo-catalyst (Light Activated Nano Technology) that is in the award winning SolarBag and Shield units. Activated by UV light, the LilyPad is ideal as a passive, continuous way to purify treatment lagoons, catchment areas and large, uncovered storage tanks.

For instance, the state of Oregon Department of Transportation is using the LilyPad to treat storm water run-off from large bridges over the Columbia River (a major waterway). The water is drained to catchment areas where the LilyPads are floating continuously to purify the run-off water from roadway contaminants before it is released to the river. In Mexico and India, different companies and NGOs will perform field tests and study LilyPads for use in purifying rain catchment water for reuse as household drinking water. In Bangladesh a large textile company will study the LilyPad for use in breaking down and removing dye contamination in their treatment lagoons.

Independent university lab studies have shown that 1 square meter of LilyPad surface area will purify a 1 log reduction of contaminants (90% removal) in 1 cubic meter of water in 1 daytime of sunshine at tropical latitude. The relationship between the time available for treatment and the surface area required is a direct correlation, so if you have more exposure time you will require fewer pads. For instance, a ten meter long, 1 meter deep ditch might only require a 1 square meter pad if at least 10 days treatment time can be available.

The LilyPad will last for years and requires very minimal maintenance. Thus, over time this passive solution is comparatively inexpensive to other consumable orientated, process options when calculated on a cost per gallon basis.

Please read on …

CLEAN CLEAR PURE
NUTRITIONAL WATER

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The LilyPad Process

It has been said that the best way to use the LilyPad is as a polisher. You would leave the pads in for weeks or days (more time and a cheap form of agitation will reduce the amount of pads needed). Agitation is highly recommended for a more efficient process.

Also, surface contact area, heating, cooling, and flow enhance the purification process. If you have 10 days prior to releasing the water into the environment, you would actually need 1/10th the amount of recommended pads!

The 5 Stages of the LilyPad:

Photochemical Water Purification

The LilyPad has incorporated a combination of five photochemical processes that have been shown to reduce a broad range of contaminants. These photochemical processes are driven both directly by light and indirectly through light activation of a semiconductor catalyst. LilyPad is a unique and innovative "purification engine" for water, which is scalable and can be packaged to meet the needs of target markets. The core technology uses light energy supplied by either sunlight or UV lighting to activate a nanotechnology coated fibrous mesh which then enables the five simultaneous and synergistic purification processes described below:

These processes include:

1. Photocatalytic Oxidation – an advanced oxidation process employing hydroxyl radicals produced at the surface of a photo-catalyst activated by light. Illumination of the photocatalyst with precise wavelength photons produces highly reactive hydroxyl radicals. These break the carbon bonds in organic compounds in the water, providing destruction of the emerging contaminants, including pesticides, petrochemicals, and pharmaceuticals. The critical reaction pathway is:

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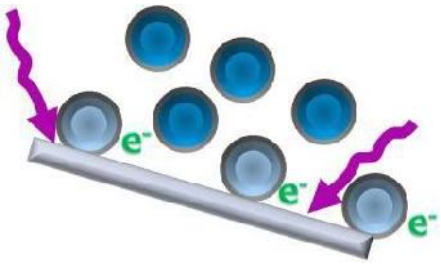
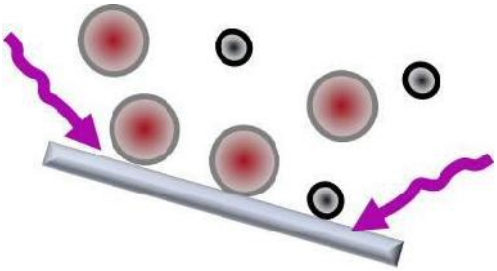
2. Photocatalytic Reduction – reduction of a contaminant to a less toxic state at the surface of a photocatalyst.



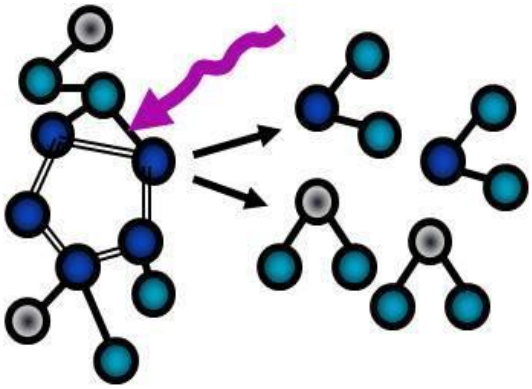
Free electrons produced on the illuminated photocatalyst instantly react with many positive valence compounds including heavy metals and inorganics, reducing them to a less toxic, more elemental state. These reduced compounds demonstrate an enhanced affinity for adsorption to the surface, where further oxidation or deposition can occur. Many inorganic compounds and heavy metals have been reported to photoreduce.

3. Photoadsorption – the light-enhanced adsorption of contaminants to a surface.



The light-activated photocatalyst strongly and irreversibly adsorbs heavy metals including mercury, lead, selenium, arsenic, permanganate, and other toxic compounds. Previous reduction reactions enhance this process. Heavy metals are permanently retained in the system, and properly managed with catalyst replaced. While the LilyPad is already an excellent medium for contaminant adsorption, LilyPad under exposure to UV light, agitation and natural heating/cooling of water body, becomes an even more aggressive adsorber. It can also irreversibly photodeposit certain contaminants on the ceramic based mesh surface. Compounds involving noble metals and non-noble heavy metals with favorable redox potentials have been shown to photodegrade into molecular components, photoreduce into less toxic forms, and then photodeposit onto the catalyst that is titanium dioxide based.

4. Photolysis – the direct breaking of molecular bonds by light of appropriate wavelengths.



High energy photons directly disassociate many chemical compounds, complementing and enhancing the effectiveness of the other processes. The multiple wavelengths of light used in the process broaden the effectiveness of this process. Photolysis is the direct absorption by a contaminant molecule of photons with sufficient energy to directly dissociate chemical bonds.

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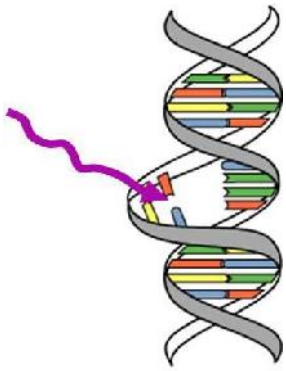
Shorter wavelengths are more energetic and therefore more effective over a wider range of chemical bonds. Hundreds of organic contaminants have been shown to photodegrade under UVA, UVB, and UVC light through direct photolysis.

5. Photodisinfection – using one or more bands of light to disinfect water.



The primary mechanism for sterilization of organisms is disruption of DNA molecules, thereby preventing reproduction. With multiple wavelengths, very high light intensity, and the other synergistic processes, pathogens are disinfected more effectively than standard germicidal irradiation. This combination provides improved sterilization of aggressive viruses, resistant bacteria, protozoa, and molds. Ultraviolet germicidal irradiation with mercury lamps is a well-established process for sterilizing pathogens. For germicidal applications, the 250-280 nm wavelength band is effective at disrupting the DNA of microorganisms. Monochromatic radiation within this band (ie: the 254 nm radiations from a low-pressure mercury lamp) sterilizes microorganisms. However, a band of wavelengths above 265 nm would be even more effective and reduce dark repair of DNA.

These five photochemical processes destroy the broadest range of contaminants, effectively removing them from the environment, in a self-cleaning eco-friendly process. Since the nanotechnology is not consumed by these reactions, and only metals remain on the catalyst over time, the media does not need to be replaced, however a periodic deionizing rinse to disinfect the LilyPad might be necessary depending on the quality of what it is polishing (this is a relatively easy process and is not time consuming). The LilyPad will last for many years and will not have to be replaced as often as other water purification products, while providing superior innovative and environment-friendly effects. The combined reactions primarily produce pure H_2O, dissolved CO_2, and trace minerals as byproducts. These photochemical processes, working together within the LilyPad products, provide a revolutionary new solution to the water purification market, especially in applications not currently possible.

A log-reduction terminology was developed by engineers as a way to express levels of decreased biological contamination in water by factors of 10 that could be easily converted to a percentage reduction. The most commonly used logarithmic base is 10 because it is compatible with our base-10 decimal system. The value of 10 in the base 10 logarithmic system is log 1, so the value of 100 is log 2, the value of 1000 is log 3, etc.

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Following is an indication of how log reduction relates to the percentage of microorganisms physically removed or inactivated by a given process.

1-log reduction = 90%

2-log reduction = 99%

3-log reduction = 99.9%

4-log reduction = 99.99%

Calculation Examples:

Sample volume = 205,000 Cubic Feet = 5,805 Cubic Meters (1 cu. Ft. = 0.0283168 cubic meters)

As an example, let's use 3 days as the time allotted before this quantity of water is used up or released. Remember that more days, more agitation, and more sunlight all have a direct proportional effect on the purification process, thus reducing the number of pads needed.

For a 1 log reduction (90% reduction) you will need 5,800 pads for one day. For 3 days, we divide by 3, which equals 1,935 pads.

To double the reduction to 2 log (99% reduction), we need to double the number of days or double the quantity of LilyPads. Using the same quantity of LilyPads (1,935), you must double the days (6). To use the same number of days (3), you must double the quantiy of LilyPads (3,870).

As mentioned on page 1 above, 1 square meter of LilyPad surface area will purify a 1 log reduction of contaminants (90% removal) in 1 cubic meter of water in 1 day time of sunshine at a tropical latitude. If you want a 2 log reduction (99%) you must double the amount of time or quantity of LilyPads; for a 3 log reduction (99.9%) you must triple these amounts, etc.

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Specifications

LilyPads are packed in case packs of 6: 3.28' ft. x 3.28' ft. x 6" high. The weight is negligible, however, we cannot quote shipping costs until we know the destination and quantity ordered.

The size of a standard LilyPad is 1 meter round; different sizes can be made to spec for large orders.

The expected life span is years, as long as they are maintained according to specifications. No oil or dirt can stay on them and they can be washed easily with a solution. The wet and in use shelf life is dependent on many factors, such as the quality of the water, the maintenance protocol followed, etc.

The dry shelf life is 7 years.

Please contact us at the numbers provided should you be interested in pursuing this further.

Thank you for your kind attention.

Sincerely,

Zak Motala CWT ll

President and CEO

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