



Puralytics



Application Note Laboratory Waste Water Treatment

Every day, analytical, medical, bioscience, and research laboratories create waste water that is typically hauled off site for disposal. This is expensive and creates storage problems in the laboratory.

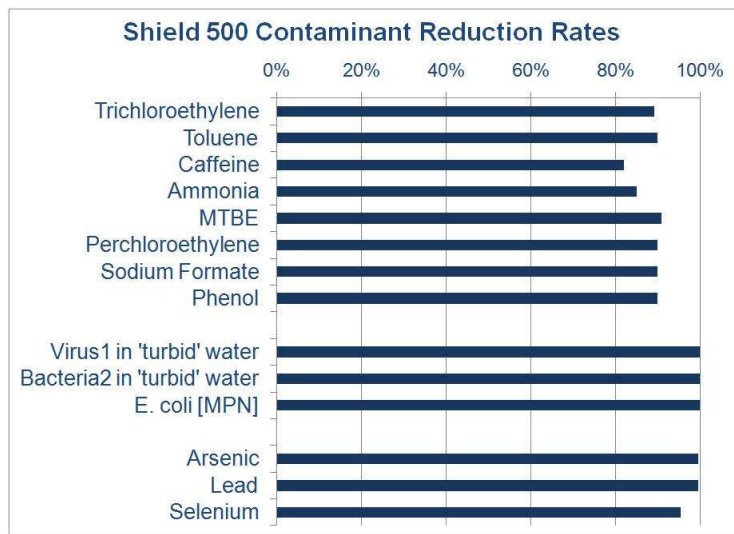
Puralytics has developed an effective water treatment system which can destroy or remove hazardous contaminants from laboratory waste water. This can enable safe discharge to municipal or on site treatment.

Puralytics **Shield 500** effectively treats:

- **Organic contaminants**—VOCs, solvents, and sample waste can be reduced by 90% in a single pass, more with recirculating.
- **Heavy metals**—Arsenic, lead, mercury, zinc, chromium, and others are removed from the water.
- **Pathogens**—Bacteria, viruses, spores, and cysts are sterilized beyond EPA or ANSI/NSF standards.



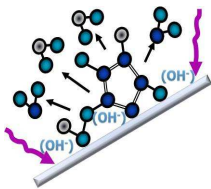
Removes Contaminants
Protects the Environment
Lowers Cost



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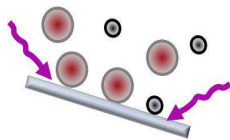
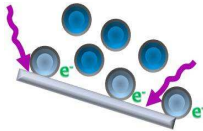
The Puralytics **Shield 500** is the world's first photochemical water treatment system. The system uses the power of light from LEDs and a powerful photo catalyst to destroy or remove a broad range of contaminants from water. This unique, patent-pending process is designed for emerging contaminants, lower operating cost, and superior environmental performance.

Light-activated Treatment Processes



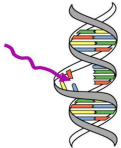
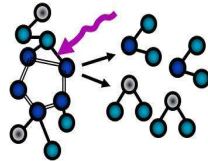
Photocatalytic Oxidation. Eliminates organic compounds from the water, providing a significant reduction in all of the emerging contaminants. A complete Advanced Oxidation system without chemicals.

Photocatalytic Reduction. Free electrons instantly react with many compounds including heavy metals, reducing them to a less toxic, more elemental state.



Photoadsorption. The photocatalyst strongly and irreversibly adsorbs heavy metals including mercury, lead, chromium, and arsenic, and other toxic compounds.

Photolysis. High energy photons directly disassociate many chemical compounds, complementing and enhancing the effectiveness of the other processes.



Photodisinfection. With multiple wavelengths and very high intensity of LED light, the process disinfects pathogens more effectively than standard UV germicidal irradiation.

Environmental Benefits

- **Destroys contaminants**—most treatment system sequester toxins in a filter or divert them into a waste water stream.
- **100 % water utilization**—no waste stream
- **Chemical free**—no chemicals used, no chemical storage
- **Low energy**—only 635 W
- **No hazardous materials**—eliminates contaminated filters and membranes

Operating Cost Benefits

- **Eliminates off site disposal cost**
- **Saves waste water storage space**
- **No routine maintenance**
- **No expensive consumables**
- **No operator required**



Shield 500 Product Information

- **Capacity**— 200 to 500 gallons/day
- **Dimensions**— 28" X 8" X 19"
- **Water temperature**— 10°C to 40°C



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