

Chemical-Free, Triple Barrier Process:

Photo-Cat is a photocatalytic, ceramic membrane process that combines the best of “chemical-free” advanced oxidation (**AOP+**) & ceramic ultrafiltration since 1993. Benefits of an AOP+ process include the strongest oxidation potential of all AOPs, provides a unique reductive pathway, metals removal, biological destruction/filtration and a significant advantage in efficiency, cost and complexity reduction. Photo-Cat destroys organic contaminants in water through a TiO₂ slurry-based photocatalytic process to purify or detoxify the fluid stream of concern. It is a unique chemical-free process that removes chemical contaminants, biologicals, NDMA, viruses, oocysts, bromate, EDCs, PPCPs, sub-micron particulate and metals such as manganese, mercury, iron and Cr⁶. The process is fully automated, sealed, generates no waste stream, and is fully backed by our World Wide Support Program. Photo-Cat is not OH[•] radical dependent, or affected by temperature / UVT.

Photo-Cat lifecycle costs are significantly less than conventional technologies such as activated carbon, UV ozone, UV peroxide, chemical oxidation, air stripping with off-gas treatment, and reverse osmosis, making Photo-Cat the economical choice for multi-year projects with complex water challenges.

This highly automated process can treat water to very high standards that significantly exceed drinking water standards. Photo-Cat is essentially a solid state, automated device that operates unattended, with lamp life and service intervals exceeding 20,000 hours.

Applications: Municipal, Industrial, Oil & Gas:

- Drinking Water
- Groundwater Remediation
- Disinfection & Sterilization
- Zero Discharge
- Industrial Process Wastewater
- High Purity Water
- Bilge & Ballast Water
- Cleaning Fluid
- RO Feed
- RO Polish
- Reuse
- Recharge
- Closed Loop



Certified to NSF/ANSI 61

“Photo-Cat PW”

Platforms

Multi-MGD



QDL



DDL



DL



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Features & Benefits

Efficient	Low lifecycle cost - 1/4 the O&M of other AOPs Lamp life - >20,000 hrs between service periods Quick lamp changes - 1 min. w/flooded system No catalyst loss - continuously recovers catalyst Continuous 24/7 duty	Automated	Unattended operation SCADA/PLC programmed operation Digital service and training manual online Remote monitoring, control, and data logging Automatic fault detection and recovery Smart Access, Service & Sensors
Ability to Treat	Insensitive to dissolved solids and opaque fluids Not inhibited by turbidity, UVT or pH levels Not affected by pressure, temperature, alkalinity No fouling - operates with water containing iron Advanced coalescer technology	Serviceability	Generic parts, easy service availability No quartz tube wipers or quartz tube service Service can be performed by end-users' staff and trades
Simplicity	No wipers; No membrane cleaning	Turn Down	0% to 100% turn down
Manufacturing Excellence	Corrosion resistant High grade stainless steel construction NEMA 4 rating Plug & Play installations Highly reliable using highly developed standard, off the shelf components	Design Benefits	Created for sustainable development 25 year life expectancy Modular design customized to client requirements No pre-treatment required for removal of metals, dissolved solids or turbidity
Small Footprint	Starting at 3.6m L x 1.02m W x 1.98m H (11'10" L x 3'4" W x 6'6" H) Palletized for convenience	High Compliance Factor	Established compliance history of regulated discharge since 1994
Community Acceptance	Extremely low noise No off-gas No waste generated	Permitted Installations	History of efficient permitting by regulators such as the EPA and MOE for surface water discharge
Chemical Free	Operated without H ₂ O ₂ and ozone		

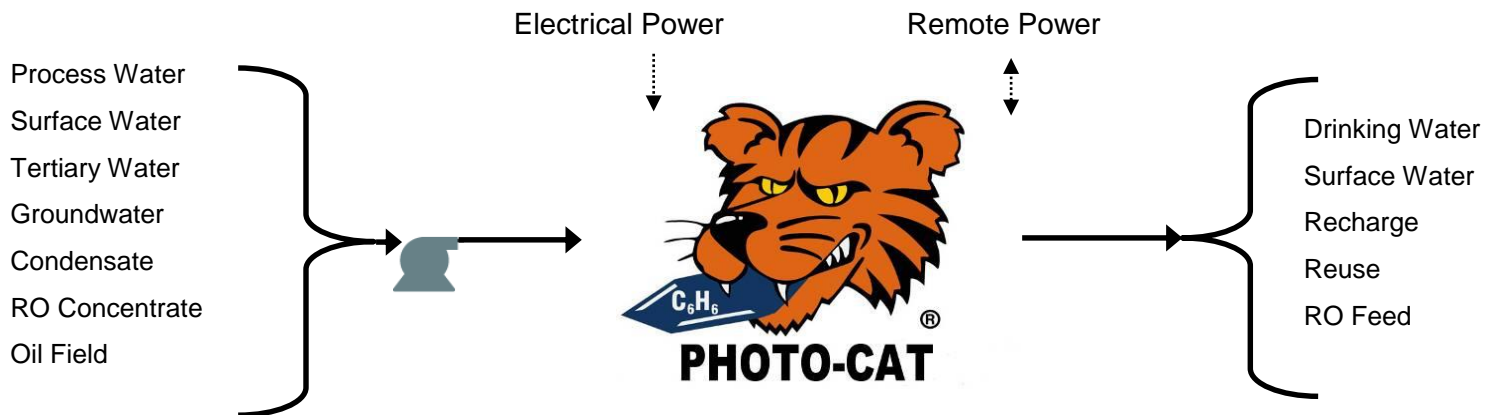


Photo-Cat is a photocatalytic membrane process that destroys organic pollutants when they are mixed with the titanium dioxide slurry, and activated by full spectrum UV light.

A key element of Purifics photocatalytic process is the patented continuous TiO₂ separation process which allows the catalyst to be completely recaptured and reintroduced into the inlet stream.



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