

Purifics has developed a comprehensive Chemical Free Water Purification Process. These unique technology innovations combine the best of Fifth Generation Ceramic Ultra-Filtration Membrane Technology (**Cuf**), Chemical Free AOP+ (**Photo-Cat**), and DeWatering Recovery System (**DeWRS**) (Zero Liquid Discharge) with Complete Process Automation. **Cuf** is a durable and robust SiC hydrophilic membrane process that filters contaminants, reduces complexity and chemicals, and eliminates membrane replacement and costs. **Photo-Cat** is the only photocatalytic AOP+ that destroys all chemicals, without adding chemicals. **DeWRS** achieves zero liquid discharge and recovers product in a thick concentrate for mineral reuse or direct to landfill.

Purifics systems purify water by removing: Chemicals, Metals, Turbidity, Bacteria, Viruses, Oil, Particulate, TOC, BOD, COD, DOC, Color, Taste, Odor, Hardness, TDS, EDCs, PPCPs, TSS, TTHM & HAA Precursors, H<sub>2</sub>S, green algae & Silica. See reverse for details.



## Purification Technologies:



**Cuf** Ceramic Ultra Filtration -- **Cuf** is a unique ceramic membrane technology that has been refined over 20 years of industrial and municipal applications. Significant refinements in both process and 5<sup>th</sup> generation ceramic membrane design have advanced the technology substantially to the point where it renders other UF technologies obsolete. **Cuf** features substantially smaller footprint, reduced OPEX and CAPEX, and reduced complexity over other traditional UF systems.



**Photo-Cat** Photocatalytic Advanced Oxidation Process (AOP+) -- **Photo-Cat** is a chemical free, photocatalytic membrane system that destroys organic contaminants in water with no waste. **Photo-Cat** is used in both industrial and municipal markets. **Photo-Cat** is unique in that it has the greatest oxidation potential of all AOPs, and it has a unique reductive capability, making **Photo-Cat** AOP+.



**DeWRS** DeWatering Recovery System -- **DeWRS** is a zero liquid discharge (ZLD) system which concentrates the sludge and recovers oil, solids and other contaminants during the closed loop process in the **Cuf** system. **DeWRS** eliminates the need to truck waste water to hazardous waste sites.



**Cuf/RO** Ceramic Ultra Filtration / Configurable Reverse Osmosis -- Purifics has successfully piloted a complete water purification system utilizing **Cuf** and **RO**. These combined unit processes purify groundwater, removing TSS, turbidity, sand, pathogens, nitrates, and heavy metals. This combination of technologies can be utilized to treat groundwater of even the poorest

quality to drinking water standards.

## Contaminants Removed:

<b>Metals:</b>	Cr <sup>6</sup> , Fe, Hg, Pb, Mn, As, Tc <sup>99</sup> , Sn, Ba, Be, Cd, Co, Cu, Ni, Se, Th, Au, Ag, Pt, V, Zn, Al, U, P			
<b>Bacteria:</b>	Cryptosporidium, E-coli, Giardia, Bacteriophage, Spores, Cyanobacteria, etc. >5 Log removal (Remove, or kill, or consume)			
<b>Viruses:</b>	Adenoviruses, MS2, etc. >7 Log removal (Remove, or kill, or consume)			
<b>Oil/NAPL:</b>	Heavy, Light, Oil/Sand, LNAPL, DNAPL, mechanical & chemical emulsions, diesel, gasoline Recovered as Neat product			
<b>Particulate:</b>	Absolute ceramic membrane filtration of particulate, Range <400 - 25 nm size by filtration, agglomeration, oxidation, reduction, etc.			
<b>NORMs:</b>	Radium 226, Radium 228, Gross Alpha, Gross Beta			
<b>TDS:</b>	Nitrates, Calcium, Sulfites, Chloride, etc.			
<b>Chemicals:</b>	Alcohols	Amines	Chemical Warfare Agents	Nitro-Organics
	Aldehydes	Aromatics	Dioxins/Furans	PAHs
	Alkanes	BTEX	Energetics	PFAS
	Alkenes	Carboxylic Acids	Ethers	PFOS
	Alkynes	Chlorinated Alkanes	Explosives	Peroxides
	Aliphatics	Chlorinated Aliphatics	Herbicides/Pesticides	Phenols
	Amides	Chlorinated Aromatics	Ketones	TTHM & HAA Precursors

## Specific Contaminants of Concern

Purifics processes do not generate H<sub>2</sub>O<sub>2</sub> residual, Bromate, NDMA and will destroy these contaminants if present.

## Fluids Purified

In addition to water, Purifics systems purify fluids such as NAPLs & fuels, and aggressive chemicals such as solvents, acids and bases.

## Solution Specification

Purifics complete water purification systems operate at various ranges and are able to achieve advanced purification levels suited to the client's desires or requirements. Purifics technology has been accredited with a variety of awards and certifications.



340 Sovereign Road, London, ON, Canada, N6M 1A8  
Ph: 519-473 5788, info@Purifics.com, www.Purifics.com

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