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WASTEWATER TREATMENT

At Avlon Inc., we are driven by a singular vision — delivering smart, sustainable, and scalable engineering solutions that address the critical needs of water, energy, and environment. With a proven track record across the Philippines and Southeast Asia, we specialize in technologies that serve industries, communities, and the planet.

Our wastewater treatment solutions are engineered to meet stringent DENR DAO 2016-08, as amended by DAO 2021-19 regulatory standards while ensuring efficient, low-maintenance operations. From MBBR to electrocoagulation and DAF systems, we provide customized treatment processes that safeguard water bodies and public health.

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Who We Are

About Us

With over 35 years of expertise in wastewater treatment plant, air pollution control equipment's, industrial steam boiler including power plants and oil refinery design, engineering, construction and commissioning, AVLON has been a trusted industry leader since 1980. Renowned for excellence, we have played a key role in pioneering projects across India's oil and refinery sector, setting new standards in quality and innovation.

In 2015, AVLON expanded its operations to the Philippines, establishing itself as a premier integration contractor in the Energy and Environmental Sector. We operate with a strong infrastructure, including state-of-the-art heavy lifting and construction tools, a full-scale fabrication shop, a vast warehouse, and an advanced design and engineering facility.

With a commitment to excellence and innovation, AVLON continues to lead the way in shaping the future of the Energy and Environmental Sector in Philippines.

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Avlon's Advanced Ozone Oxidation Technology

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Ozone oxidation is a powerful advanced oxidation process widely used for the treatment of wastewater containing complex and non-biodegradable contaminants. Many industrial effluents contain compounds such as synthetic dyes, phenols, pharmaceuticals, pesticides, surfactants, and refractory organic chemicals that are resistant to biological degradation. Ozone provides an effective solution for breaking down these persistent pollutants, improving biodegradability, and polishing the final effluent prior to discharge or reuse. Because ozone is an extremely strong oxidizing agent, with an oxidation potential significantly higher than chlorine, it can rapidly destroy a wide range of organic molecules while simultaneously disinfecting pathogens and eliminating color and odor.

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The treatment process begins with the generation of ozone gas from oxygen using a high-voltage corona discharge ozone generator. The ozone is then injected into the wastewater through specially designed diffusers or venturi injectors, ensuring efficient gas-liquid contact. Once dissolved, ozone reacts with contaminants through two primary mechanisms: direct molecular oxidation and indirect radical oxidation. In the latter pathway, ozone decomposes to form highly reactive hydroxyl radicals (•OH), which aggressively attack complex organic molecules and convert them into smaller, more biodegradable compounds.

The efficiency of ozone oxidation depends on several key process parameters, including ozone concentration, contact time, mixing efficiency, pH conditions, and mass transfer rates. To achieve maximum oxidation efficiency, reactors are designed to promote fine bubble dispersion and uniform mixing of ozone within the wastewater stream. This ensures high ozone transfer efficiency and minimizes gas losses. Proper reactor hydraulics and contact chambers allow sufficient residence time for oxidation reactions to occur, resulting in significant reductions in Chemical Oxygen Demand (COD), color, odor, pathogens, and toxic organic compounds.

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Avlon's ozone oxidation systems are engineered with high-efficiency ozone generators, precision gas injection systems, optimized reactor chambers, and automated control panels to ensure reliable and energy-efficient operation. Our systems are designed for seamless integration with upstream and downstream treatment processes such as Electrocoagulation, Dissolved Air Flotation, Lamella Clarifiers, and Moving Bed Biofilm Reactors. With extensive experience in treating challenging industrial wastewater streams, Avlon provides compact, automated ozone oxidation solutions that consistently meet the stringent discharge limits of DENR DAO 2016-08 and DAO 2021-19, ensuring safe and environmentally responsible wastewater management.