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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.



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.

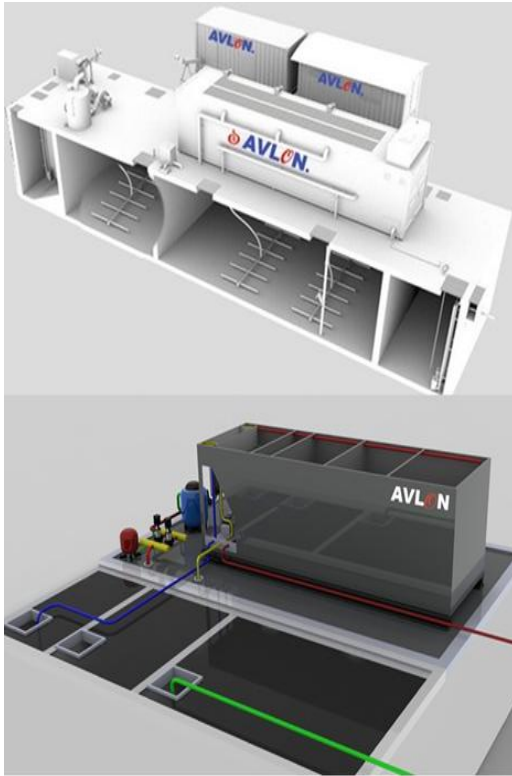
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Avlon's Advanced Moving Bed Biofilm Reactor (MBBR) Technology

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The Moving Bed Biofilm Reactor (MBBR) is an advanced attached growth biological treatment technology that combines the advantages of conventional activated sludge systems and fixed film reactors. The process utilizes specially engineered high-surface-area plastic carriers that move freely within aerated reactor tanks. These carriers provide an ideal environment for the development of dense microbial biofilms capable of degrading organic pollutants. Because the biomass grows on the carriers rather than remaining suspended, the system can maintain a significantly higher concentration of active microorganisms, resulting in faster degradation of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and other biodegradable pollutants.

Inside the MBBR reactor, wastewater is continuously aerated using fine bubble diffusers or mechanical aeration systems. The aeration performs two critical functions: it supplies the oxygen required for aerobic microbial activity and simultaneously keeps the biofilm carriers in constant motion. This dynamic mixing ensures optimal contact between wastewater, oxygen, and microbial biofilm, maximizing treatment efficiency. The carriers are designed with internal protected surface areas that prevent excessive shear while allowing biofilm growth, ensuring stable biological performance even under variable hydraulic and organic loading conditions. One of the major engineering advantages of the MBBR process is its high treatment efficiency within a compact footprint. Because of the extremely high specific surface area of the biofilm carriers—often exceeding 500–1,000 m² per cubic meter of media—the reactor can treat large organic loads in smaller tank volumes compared to conventional biological systems. MBBR systems are also highly resilient to shock loads, toxic inflows, and flow variations, making them ideal for industrial wastewater, municipal sewage, retrofit applications, and decentralized treatment systems.



Avlon's advanced MBBR systems are designed with optimized hydraulic retention times, media fill ratios, aeration distribution, and reactor staging to achieve superior biological performance. Our systems incorporate corrosion-resistant tanks, energy-efficient blowers, automated control panels, and modular construction that simplifies installation and future expansion. With extensive experience in supplying and commissioning wastewater treatment plants across multiple industries, Avlon delivers robust, low-maintenance MBBR systems that consistently meet the effluent discharge limits of DENR DAO 2016-08 and DAO 2021-19.

