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The OxyStrip System Strip VOC's & Oxidize Metals using Air One System, No fouling, No chemicals

The OxyStrip system represents a revolution in the water treatment industry. This groundbreaking system can strip volatile organic compounds as well as dissolved gases such as CO2 and Radon while directly oxidizing iron, manganese and sulfides. The two vehicles do not interfere at all with each other and the system will not clog or foul and requires very little maintenance. The system affords direct oxidation of iron, manganese and H2S as the compounds pass through the nozzle.

The engine that drives the OxyStrip system is the Oxygenator Nozzle. Water is pumped through the non-clog nozzle which draws in large quantities of air into the high turbulence mixing and shear zone. The air and water exit the nozzle as one in a powerful spray. Passing through the nozzle liberates partially soluble compounds like VOC's and gases while directly oxidizing certain metals and sulfides. The OxyStrip Air Stripper utilizes the remaining kinetic energy of the mixed stream to further separate these volatile compounds while additional air is introduce to help carry them out the exhaust. The Oxymetals system utilizes this energy for additional mixing if co-precipitation of arsenic, lead or other metals is desired or for the addition of chemicals as needed.

The system can be configured to optimize stripping of the compounds in the water or oxidation of the metals or both.









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The OxyStrip System .. No clogging, No Fouling, ... No Kidding

Air Stripping is an efficient and cost effective means of removing VOC's and dissolved gases from water. However, the presence of iron or other dissolved solids can quickly create issues and render this technology ineffective. Thanks to the OxyStrip System solids are no longer an issue for air stripping.

Since its inception in 2011, the OxyStrip system has proven that it can operate in any water and efficiently strip Volatile organic compounds and partially dissolved gases such as CO2 and Radon without fouling. Not only do these compounds not affect its operation, but the OxyStrip system is utilized to oxidize metals. The system effectively oxidizes iron and manganese which precipitate out of solution and pass through or drop out. minerals and chlorides are similarly not an issues, even in high concentrations.

While the system is designed to never foul, we do not take any chances. the Oxygenator Nozzle is readily accessible and easy to inspect and maintain should that ever become necessary. The OxyStrip system is very simple with few moving parts and nothing placed inside our stripping tanks that needs to be cleaned or accessed.

Some advantages of the OxyStrip System

Simplicity: Pumps, Oxygenator Nozzle and a fan – nothing else to worry about Will work in any water quality – leachate, wastewater, sea water, etc. Virtually no Maintenance: NO FOULING Performance is consistent – we do not lose efficiency because of fouling Large flows are no problem Iron and Metals Treatment and stripping in one system Ideal for Retrofits – we can often use an existing tank Easily configured for your application Choice of tank designs and materials









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Direct Oxidation of Iron, Manganese & Sulfides using Air

The OxyMetals System uses the same basic technology as the OxyStrip System which has been optimized to directly oxidize Iron, Manganese, and Hydrogen Sulfide. This system can be configured to also strip VOC's etc or can be configured to use the additional energy for mixing. Unlike submerged aerators or oxygen injection, the Oxymetals systems pushes the water itself through the nozzle which exposes the oxygen deficient compounds to large volumes of oxygen. This step assures fast, powerful and complete oxidization as the water passes through the nozzle.

The Stripping component and the oxidation component are not affected by each other. The system can be configured to mute the stripping or to enhance it depending, customized for the application.

The OxyMetals system provides vigorous mixing which enhances coprecipitation of arsenic when iron oxidation occurs. Precipitating agents can also be added directly to the oxidation loop for removal of other metals which are not directly oxidized.

The system is offered with a number of options for the process tanks. The process tanks are equipped with sludge collection and removal connections. Where feasible, the tanks are offered with large specially designed settling chambers and conical bottoms to facilitate the settling of the precipitated metals. We also recommend adding a filtration step after any metals precipitation system. Theia offers a number of options for that step.









Packaged Treatment Systems - Putting it all together

Filtration

Theia's SC Filters will remove the remaining iron and other metals **without the addition of chemicals.** These unique MF/UF filters are designed to operate in a similar manner to sand filters but with many advantages. These filters, which are constructed from pure silicon carbide, are designed for long maintenance free life (10-20 years) with little or no attention from the operator. They offer the highest flux rates in the industry making them an economical choice for this task.

Theia also offers sand filters, screen filters, as well as disc filters which are also effective choices. These filters will typically require some polymers to be added in order to remove the smallest particles. All of our filtration options include automated short duration backwash cycles which are potent without using a lot of water. In the case of the SC filters, the system also includes an automated clean in place system.

Solids Handling

This backwash, along with any solids from the settling tank, is sent to our EZ sludge system (optional) or can be sent to wherever the customer requires. EZ Sludge solids handling system will dewater the solids from the treatment process without intervention from the operator. The system utilizes gravity and a unique sludge dewatering filter. We offer a number of designs for this system and have an enhanced version that uses air to achieve higher than 50% solids

Theia offers these components assembled into one fully integrated treatment system including full PLC control with remote telemetry. These systems come installed in sea containers, trailers, prefabricated buildings or skid mounted.







