

GUARDIAN

Manufacturing

Research & Development Laboratory

Exclusive Laboratory Provider for  PINNACLE
OZONE SOLUTIONS, LLC

The Guardian Manufacturing R&D Lab was built in 2008 to provide reliable, individualized ozone system design criteria for our clients. The lab has grown since then and expanded our testing capabilities and data reporting to provide a one-of-a-kind service in the ozone industry. Our staff will work with you directly to determine the treatment goals of your system and how that can best be accomplished. By doing bench-scale studies with samples from your process stream, you can be certain the results you get are truly representative of the final system design.

Ozone Demand & Decay

We can determine exactly what ozone dose your process water requires to meet your treatment standards and how long the ozone residual will be present for added disinfection.

Mass Transfer Efficiency

With our unique lab set-up, we are able to test your ozone transfer device and provide an efficiency curve to aid in your product development.

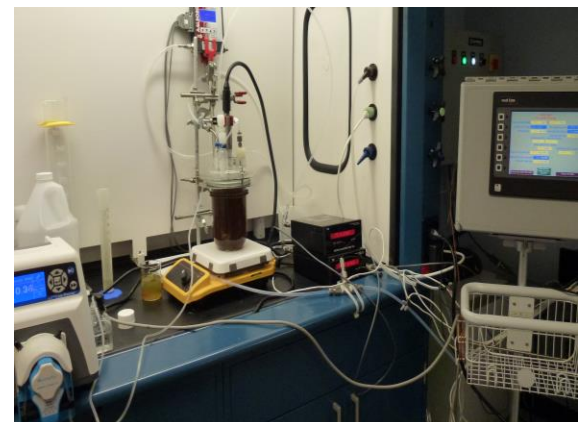
Innovative Process Design

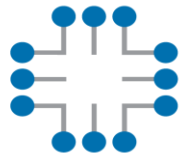
We are currently researching new methods of on-site treatment for highly polluted wastewaters that normally must be transported to treatment facilities around the country at a very high cost.



Ozone Demand and Decay Studies

To ensure the proper ozone system size and design before installation, an ozone demand and decay study can be performed by our scientists. Using a sample of your process water, our chemists will perform a background chemistry analysis that allows them to choose an appropriate ozone dose. An ozone demand study is then done according to method 2350 D of the Standard Methods for the Examination of Water & Wastewater or by using a gas injection method developed in the R&D Lab. By using a known applied ozone dose and tracking the residual ozone concentration in the sample, we can provide you with a highly detailed ozone demand and decay report once testing is complete. With all of the data collected by our scientists and our state-of-the-art data collection system, there will be a multitude of information that can then be discussed with our system design engineers to design an ozone injection system that meets your specific needs and treatment criteria. This individualized testing and design ensures the best results for you and your company prior to capital expenditure.





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Mass Transfer Efficiency Studies

At the R&D Lab, our staff has the capability to assess the performance of your mass transfer devices and provide design modification feedback. Currently, the lab is capable of testing devices that handle up to a 200 gpm flow rate. The staff will build a test system to accommodate your device and collect important ozone dosing information using a state-of-the-art data collection system. This information includes ozone dosing and off-gas data, gas to liquid ratios, and other valuable system design information. Upon completion, you will be provided with a report including this logged data and suggested design modifications to improve the efficiency of your device.



Guardian Manufacturing

Guardian Manufacturing has strategically developed into a leader of industrial and commercial control system design and integration since 1993. We're a diversified manufacturing and control system integration company that provides products and solutions for automotive, food & beverage, agriculture, laundry, zoological, aquaculture, home building products, space, entertainment, and pharmaceutical industries.

Guardian products include energy efficient ozone laundry systems, ozone generators, water based ozone antimicrobial treatment systems, ozone sanitation systems, gaseous ozone treatment systems, cold room ozone, custom vacuum chambers, commercial lighting controls, audio & video panels, hazardous gas monitoring systems, real-time vision systems, ozone systems, and RFID systems for just-in-time, plant automation systems.



For more information on any of our products or services please visit us on the Web at:
www.GuardianMfg.com

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