# MULTISTAGE IWS® RETROFIT

## CHEMICAL PROCESS EMISSIONS SYSTEMS UPGRADE

A major U.S. company in the chemical process industry upgraded their liquid waste incinerator to a higher capacity. The original system had been in operation for over 20 years and was required to meet new regulatory emissions requirements .

After reviewing various technologies, they chose a Verantis Ionizing Wet Scrubber (IWS®) pollution abatement system based on their previous successful experiences with the IWS®. The same customer has three major incinerators that all use IWS® systems to remove acid gases and the fine particulate of various heavy metals such as antimony, lead, and zinc.

The existing system was replaced with a three-train, three-stage IWS® system to achieve higher pollutants removal efficiency.

The IWS® has a low pressure drop compared to other traditional wet particulate scrubbers such as venturi systems, and can easily be retrofitted to any existing installations. IWS systems are capable of achieving outlet particulate loadings below 0.001 gr./DSCF.

The unique design of the IWS® combines the established principles of electrostatic particle charging with the gas scrubbing capabilities of a packed crossflow scrubber. Each IWS® stage is modular and pre-assembled for ease of installation and multiple units can be staged in a series, parallel, or both to achieve very high removal efficiency for the more stringent submicron particles such as $SiO_2$.

### OVERVIEW

The existing system was replaced with a three-train, three-stage IWS® system to achieve higher pollutants removal efficiency.

### EQUIPMENT

For this project, Verantis provided nine IWS® units with a multistage IWS system. Verantis IWS® systems can be designed in stages or “trains” to increase efficiency and provide the best solution for customer’s needs.

### AUXILIARY EQUIPMENT

As this was a replacement to an existing system, additional equipment was not provided.

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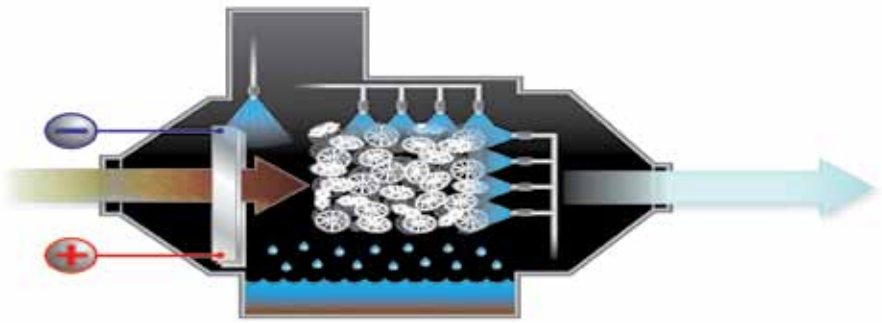
# MULTISTAGE IWS® SYSTEM



## FEATURES

- Solutions provided for a major U.S. company in the chemical process industry that upgraded their liquid waste incinerator to a higher capacity.
- The same customer has three major incinerators that all use IWS® systems to remove acid gases and the fine particulate of various heavy metals such as antimony, lead, and zinc.
- Verantis design/build services included replacing the existing system with a three-train, three-stage IWS® system to achieve higher pollutants removal efficiency. Verantis' IWS® scrubbers use a high voltage ionization field to electrostatically charge particulate in the gas stream before the particles enter sa Tellerette® packed scrubber section where they are removed by attraction of the charged particles to neutral surfaces.
- Verantis provided an engineering solution to replace the original system which had been in operation for over 20 years with an improved system that met new regulatory emissions requirements .

For more information and resources,
please visit www.verantis.com.
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### TECHNICAL CAPABILITIES

All parts of the IWS® system and additional equipment were designed in-house. System components were sourced through a world-wide network of fabricators and suppliers.

### DESIGN CAPABILITIES

Systems can be designed to accommodate a variety of requirements including NFPA, API, ASME, and regulatory codes such as Chinese GB, European EN and US EPA standards.

### TURNKEY SOLUTIONS

Verantis is able to provide Turnkey Solutions globally for most of your incineration and pollution control needs. For more information on any of our production or solutions, please visit us at www.verantis.com

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