### Energy Savings Through Heat Recovery

Because Aerisa ionization systems include a supply air handler, the exhaust from the room may be used to pre-heat the outside supply. With an exhaust-only system such as chemical or carbon scrubbers, room unit heaters must be utilized to offset the 6 to 12 air exchanges per hour of outside air that makes up the wastefully exhausted air out of the scrubber.

Aerisa’s energy recovery unit (ERU), with up to 80% efficiency, may save enough electricity or gas to return the investment in only a few years. Green funding for the ERU may further improve ROI. Aerisa supply air handlers can also include electric or gas heaters that eliminate CAPEX costs associated with unit heaters.

### Commercial Air Purification

Aerisa has deployed its ionization systems in a variety of commercial indoor air improvement applications such as airports, casinos, pet retail, food retail, office buildings, schools, gymnasiums and auditoriums. **Particles** (dust, pollen, pet dander, mold spores), **odorous compounds** (ammonia, VOCs) and pathogens (bacteria, virus) are all readily treated by ionization.

Aerisa’s tube or needlepoint brush ionization technologies are tailored for the specific pollutant loading and flow rate. Through use of the **IAQ Procedure** in ASHRAE Standard 62.1, “Ventilation for Acceptable Indoor Air Quality,” outside air may be significantly reduced up to 60% when utilizing Aerisa’s ionization technology. Provided with some basic design information, Aerisa will return a full set of calculations documenting that emitted pollutant concentrations remain lower than acceptable levels.
Air Purification for Wastewater Facilities

Cost Effective Odor Control

Traditional odor control methods such as the use of chemical based wet scrubbers or carbon adsorption systems are both capital and maintenance intensive. Aerisa’s innovative approach provides unique technology for odor control with much lower total cost of ownership.

A Different Approach

Unlike legacy odor control systems that utilize carbon, chemicals or biological media to scrub air exhausted out of a building or headspace, Aerisa ionization systems supply highly ionized air with O₂⁺ and O₂⁻ ions to the application areas. These ions proactively attack the contaminants at their source while vastly improving indoor working conditions. As a second purification step, outside air may be ionized and mixed with pretreated facility air in an exhaust air handler to deliver high quality exhaust.

AERISA’S TWO-STAGE APPROACH FOR ODOR ELIMINATION

SUPPLY
AerSupply AHUs

INSIDE the Space
AerDuct Distributes Ions

EXHAUST
AerExhaust AHUs

Ionization Science

The Aerisa ionization technology for wastewater applications is based on ions produced by an ionization tube. The tube works with single phase AC power transformed to approximately 3,000 volts. The electrical potential created by the tube, along with system airflow, creates positive and negative oxygen ions that form molecular ion clusters with highly oxidizing power. Each ionization unit comes with five tubes, with the application-specific quantity of ionizers housed in an industrial air handler.

Aerisa Solution

• Eliminates odors within hours of installation
• Treats odors at their source
• Creates healthier work environment
• Provides significant capital, installation and operational savings
• Ongoing maintenance costs approximately one-third that of traditional scrubber systems
• Straightforward retrofit for most municipal wastewater facilities

AerDuct Ventilation

Effective ionization system configuration requires an engineered ventilation design. Proper ductwork material selection, sizing, and location, along with ionized air and facility exhaust velocities, are critical for system performance. Aerisa’s AerDuct properly distributes ions throughout application areas to achieve superior results for wastewater related applications. AerDuct is available in several materials including polyethylene, aluminum, stainless steel, PVC, fiberglass and galvanized steel.

A Complete Solution for Multiple Applications

Aerisa ionization systems are factory engineered to address a wide range of airflow rates and contaminant concentrations. Application areas include:

• Headworks Buildings
• DeWatering Rooms
• Truck Loading Facilities
• Process Tank Headspaces
• Large Pump/Lift Stations and Wet Wells

Solving a Bigger Problem

Aerisa Systems Deliver:

• Cost Effective Odor Removal – Removes odors with small relative footprint, requires no storage tanks, and incorporates optional heating systems.
• Corrosion Control – By proactively attacking H₂S and other corrosive gases inside the application area, the corrosion of metal components is significantly reduced or eliminated.
• Reduced Maintenance – With no moving parts other than fans, Aerisa systems require minimal maintenance, costing typically 60-70% less than competing exhaust-only systems. ORP meter and chemical pump maintenance, reordering of chemicals, and exchanges of carbon media are not required.
• Low Energy Consumption – One Aerisa ionization unit effectively treats 500 to 1000 CFM, but only requires 50 watts of power. Since ionization systems utilize the facility volume as a reaction chamber instead of using a tank as with exhaust-only scrubbers, pressure drop is low, and the resulting fan power requirement is 70-80% less than traditional solutions.
• No Chemicals Required – Aerisa’s ionization technology generates clusters of oxygen ions with highly oxidative capacity that break down a wide variety of wastewater-related, odorous compounds without the use of costly and hazardous chemicals.
• Retrofit into Existing Facilities – Aerisa systems can be retrofitted into existing facilities by reutilizing existing HVAC infrastructure, resulting in significant capital cost and installation savings. For those facilities without HVAC systems, Aerisa equipment requires a relatively small footprint.

“Aerisa not only solved the odor problem ahead of schedule and under budget, it’s also environmentally friendly – leaving no chemicals or toxic waste, and requiring less maintenance and lower energy costs than competing or custom solutions. At the two locations where the Aerisa system has been installed, it’s literally now like a breath of fresh air.”

Bob Dodds, President – Liberty Utilities
Palm Valley Water Reclamation Facility, Goodyear, Arizona
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