

## INTEGRATED WATER SYSTEM SOLUTIONS

### AdEdge Packaged Units & Modular System For Manganese Reduction

Compliance with the United States EPA and the World Health Organization's maximum contaminant level of 0.05 parts per million (ppm) for manganese impacts thousands of water systems throughout the United States and other countries around the globe.

Manganese is common in groundwater and typically seen as a nuisance contaminant that can cause discoloration and taste issues; however, recent studies have shown manganese toxicity targeting the central nervous system resulting in lowered intelligence quotient (IQ), poor motor functions, decreased attention span, and hyperactivity, especially in children.

AdEdge offers multiple water treatment solutions rated from 5 gpm to over 12 MGD to meet your treatment needs. Choosing the right option is variable upon flow rates, manganese concentration, the presence of co-contaminants, and site specific conditions or limitations. Upon receiving a complete water quality analysis, AdEdge determines the best treatment option suitable to your needs based on years of experience and an accurate predictive model.

These options include:

- Oxidation/Filtration
- Coagulation/Filtration with iron augmentation
- NoMonia Biological Filtration

AdEdge's line of packaged, pre-engineered APU systems are the ideal solution for public water systems, schools, subdivisions, and more. We also have a line of modular treatment systems that arrive to site unassembled, ready for hook-up when they arrive on-site. These solutions can incorporate the oxidation/filtration, coagulation/filtration, or NoMonia biological filtration treatment processes with pre-and-post treatment for a complete integrated system.



600 gpm manganese removal system in North Carolina using AdEdge's AD26 oxidation/filtration media.

#### WHY CHOOSE AEDGE FOR YOUR MANGANESE REMOVAL NEEDS

- AdEdge has over 350 manganese treatment systems throughout the world.
- AdEdge offers a range of treatment options to meet your treatment needs and goals.
- Long media life that is typically over 10 years before replacement (site-specific).
- Available for potable water, industrial, and commercial applications.
- All treatment technologies are NSF 61 certified.

# MANGANESE REDUCTION

## DATA SHEET



### FEATURES & BENEFITS OF ADEdge MANGANESE REMOVAL SOLUTIONS

- Higher filtration rates resulting in smaller system footprints
- NSF 61 product listing (see AdEdge for listing site/product details)
- Effective over broad water chemistry
- Enhanced kinetics allow short contact times
- Co-contaminant removal
- Custom designed to treat a wide range of flow rates
- Reliable performance and low maintenance
- Adaptable add-on to water other existing equipment and H2Zero Backwash Recycle system

### OXIDATION/FILTRATION

Oxidation/filtration is a precipitative process that removes manganese, arsenic, iron and hydrogen sulfides from water. The process oxidizes the soluble forms of these contaminants into their insoluble forms and then removes them via filtration. Oxidation/filtration media has a high catalytic and oxidation capacity, superior handling properties, NSF 61-certification, does not require coagulant addition, and has low operating and capital costs.



### COAGULATION/FILTRATION

Coagulation/filtration is a process that introduces a coagulant, typically an iron or aluminum salt, to pretreat water contaminated with manganese, iron, arsenic, and/or sulfides. The process allows for significantly higher flow rates per square foot of media, creates less backwash water than other conventional treatment approaches,



and has a smaller footprint that allows for lower operating and capital costs. This process involves a chemical addition, automated processes, which decreases operator involvement and expense, and does not generate hazardous waste.

### NOMONIA BIOLOGICAL FILTRATION

NoMonia is a sustainable, cost-effective, and robust biological treatment approach and an alternative to legacy treatment approaches.



NoMonia was developed and patented by the USEPA (EPA Patent # US 8,029,674, October 4, 2011). NoMonia relies on naturally occurring bacteria already present in groundwater to enhance the natural nitrification process during which, in the presence of oxygen, ammonia is converted to nitrite and then nitrate. NoMonia removes manganese, iron, and arsenic if they co-exist with ammonia.