PIRONOX® ADVANCED REACTIVE MEDIA SYSTEM FOR METAL CONTAMINANT REMOVAL FROM WATER AND WASTEWATER

- Non-biological, robust process removes metal contaminants at wide range of temperatures and pH levels
- Designed for meeting NPDES limits for multiple contaminants such as selenium, mercury and other metals

BACKGROUND

Wastewater discharges from industrial sources are subject to increasingly stringent state and federal metal contaminant limits at the parts per billion or trillion levels.

Conventional treatment technologies alone, including precipitation, filtration and ion exchange, often are unable to meet new and emerging discharge limits. Biological processes require large capital investments and are sensitive to temperature, pH and other conditions of the inlet wastewater.

A NEW SOLUTION

To meet the growing regulatory requirements for metal contaminant removal, Evoqua has developed the Pironox® Advanced Reactive Media System[1]. The proprietary process used in this system relies on inorganic oxidation/reduction chemistry in which the driving force is catalytic reduction using an iron-bearing media that reduces the metals under carefully controlled conditions.

The Pironox advanced reactive media acts as an electron generator to chemically reduce soluble metal cations and oxyanions to insoluble forms. During the reaction, the treated contaminants are removed by surface absorption and chemical incorporation into the iron oxidation products.

Applications

Applications for the Pironox Advanced Reactive Media System include:

- Power plant FGD wastewater
- Acid mine drainage
- Coal ash pond remediation
- Groundwater remediation
- Stormwater treatment
- Refinery wastewater
- Contaminants removed include:
  - Selenium
  - Mercury
  - Chromium (trivalent and hexavalent)
  - Copper
  - Molybdenum
  - Nickel
  - Vanadium
  - Zinc

[1] Certain aspects of the process are licensed by Evoqua through the Texas A&M University System

SERVICE OPTIONS

In conjunction with the Pironox® Advanced Reactive Media Systems, Evoqua offers a variety of service packages. These include:

- Preventive maintenance contracts
- Full service operating contracts covering media, chemicals, labor and spare parts
- Media exchange services
- Temporary mobile systems for emergency and short-term treatment

GETTING STARTED

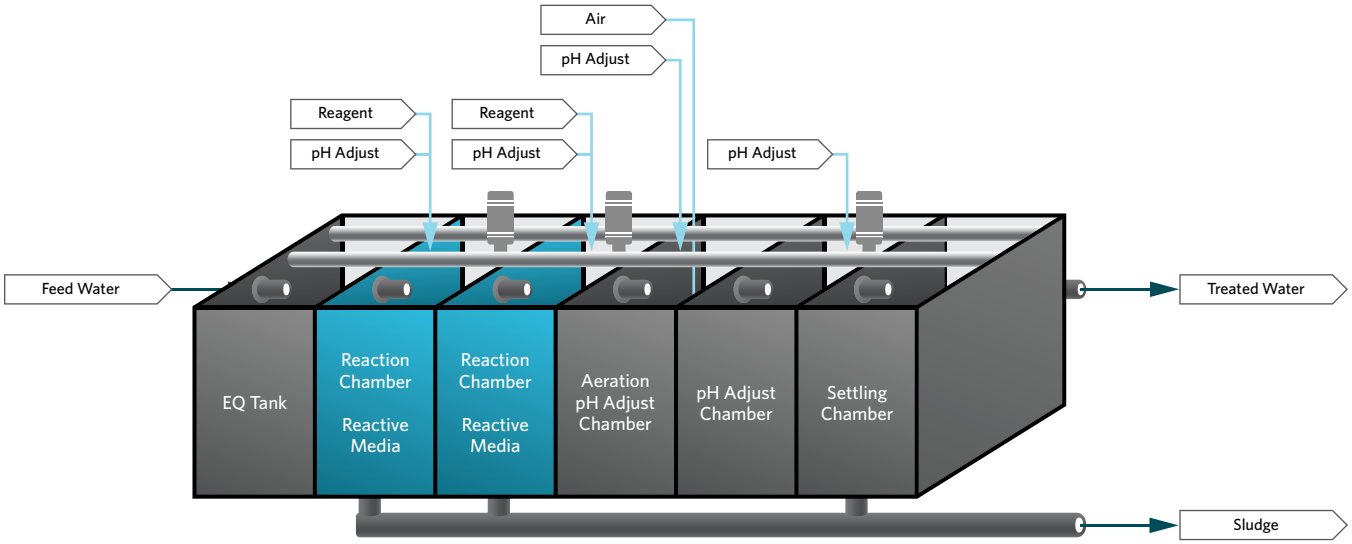
Proven test results of this technology at bench and small pilot scale have shown promising results even in challenging wastewater streams.

To determine whether the Pironox Advanced Reactive Media System can provide an answer to your needs, Evoqua offers static and dynamic laboratory testing as well as pilot systems for field testing.

For more information visit: www.evoqua.com/pironox

Features and Benefits

- Removes metal contaminants at wide range of temperatures and pH levels, unlike biological treatment
- Simultaneous removal of multiple metal species
- Performance can meet or exceed:
  - Mercury to < 5 ppt
  - Selenium to < 5 ppb
- Robust process allowing for quick startup or shutdown without detrimental effects to process
- Simple reaction chemistry and process control
- Easily coupled with post-treatment processes
- Compact modular design



SIMPLIFIED PROCESS FLOW DIAGRAM: PIRONOX ADVANCED REACTIVE MEDIA SYSTEM

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