



ABOUT US

- Industry leaders in peroxygen (H2O2) based technology and service programs
- Largest direct North American provider of H2O2 for environmental service applications
- Focus on resolving environmental problems in the **municipal**, **industrial** and **remediation markets**
- Provide solutions that are turn-key, value-added and performance-driven
- Over 150 customers and 250 installations
- Part of the Trojan / Danaher business family



technologies™

4 N A H F R



PARENT COMPANY PROFILE



- Trojan Technologies encompasses six businesses: Aquafine, Trojan Marinex, TrojanUV, Salsnes Filter, USP Technologies and VIQUA.
- The products and services provided by these businesses play vital roles in making various states of the water treatment process more effective, efficient and sustainable.
- HQ: London, ON; 700 Associates
- trojantechnologies.com







- Diversified technology leader
- Designs, manufactures and markets innovative products and services with strong brand names and significant market positions
- 2014 Revenues \$19.9B
- HQ: Washington, DC; 66,000 Associates
- danaher.com





TOTAL CHEMICAL MANAGEMENT



- Safety and Risk Management
- System Engineering
- Installation and Commissioning
- Field Operations
- Multi-Chemical Supply
- Project and Chemical Logistics
- Field Service and Maintenance



SAFETY AND RISK MANAGEMENT

- Site Process Hazards Analysis via new site forms
- Pre-startup safety reviews
- Equipment design and installation per strict USP and industry standards
- Project specific safety and operations training
- Safe mobilization and demobilization
- Incident investigation
- Annual corporate training programs





EMPHASIS ON SAFETY

All of our programs meet strict safety criteria:



- Process Safety Management (PSM) Review
- Process Hazards Analysis (PHA) Review
- Pre-Startup Safety Review (PSSR)
- Management of Change (MOC) Review



CUSTOM DESIGNED SYSTEMS





- Customized equipment design and fabrication
- Modular systems designed for quick assembly
- On-site dilution and dry chemical mix systems
- USP installation and commissioning
- Safety and operations training





FULL SERVICE CHEMICAL OFFERINGS

Oxidants

- Hydrogen Peroxide
 - Custom concentrations delivered to site (up to 50%)
 - On-site dilution systems
 - DHS Compliant
- Percarbonate
- Permanganate
- All PeroxyChem chemicals
 - Klozur (sodium persulfate)
 - PermeOx
 - Klozur OBC

Activators

- Ferrous Sulfate
 - Dry or in solution
 - Chelated solutions (EDTA)
- Hydrogen Peroxide
- Caustic
- Lime

Other

- Barium Chloride
- pH Control

Specialty Blending Capability





USP provides the full suite of remediation chemicals



USP REMEDIATION PROJECTS



Proven Results: Over 300 projects completed with zero recordable incidents



RAPID RESPONSE & TCM PROGRAMS





DRY CHEMICAL APPLICATIONS





Sodium Persulfate





SECURITY AND SITE CONTAINMENT











CASE STUDY: MGP PROCESS FACILITY

Queens, NY - Treatment: 10/2010 - 03/2011

Located on a bank of the East River, this 0.75-acre parcel is part of an urban revitalization project. Previously, MGP coal tar that was brought onto the site leaked into the subsurface, contaminating the soil and groundwater with BTEX, naphthalene, and other PAHs. Due to the extent of the contamination, significant quantities of chemicals (proprietary surfactant, sodium persulfate, and caustic), equipment and field services were required to remediate the site:

- 8,000 gallons of surfactant
- 335,000 lbs of Na2S2O8
- 65,000 gallons of NaOH to activate persulfate
- 1.6M gallons of total chemistry into 34 wells





CASE STUDY: MGP PROCESS FACILITY

Queens, NY - Treatment: 10/2010 - 03/2011

USP engineered an equipment program with multiple chemical mixing, storage and conveyance systems designed and sized specifically for the project.

The program focused on providing safe, reliable and cost-effective equipment solutions utilizing fieldtested modular components for operational reliability, improved performance and simplified installation and startup.

Emergency Response Module:

USP provided an emergency eyewash and safety shower station complete with a water filter and emergency response water supply. USP pump skids provided potable water to the safety stations.

Chemical Dosing Systems:

USP provided modular chemical transferring systems with materials of construction specific to each chemical type to feed all the chemicals to the customer's dosing trailer. USP also provided all interconnecting piping from the storage tanks to the well feed control devices.







CASE STUDY: CHLORINATED SOLVENT

Adelaide, South Australia – Treatment: 08-09/2011

The Pilot Test was implemented to remediate TCErelated contaminants present and also to provide data to inform the design of a full-scale remedy for site contamination.

- During 18 days of injection, approximately 160,000 L of chemistry was injected into three wells in the Pilot Test area.
- The results showed reduction of greater than 99% of the TCE contamination present in five of the groundwater monitoring wells in the treatment zone, an approximate 40 m by 40 m area.
- Approximately, 30,000 kg of sodium persulfate, 1,300 kg of surfactant and 14,000 L of sodium hydroxide were used.

USP played a critical role during site set-up and start-up due to the remote location of the project. Acting on behalf of the contractor, USP directed site subcontractors to set-up and assemble site equipment and process prior to arrival of the contractor. Preparation included stringent managing NaOH storage requirements and tank specifications.



USP – 650 DRY MIX





- Address emergency treatment situations with rapid supply of chemical(s), equipment, field & technical support
- Ready access to inventory of peroxide tanker trucks, Isotainers, turn-key storage & dosing systems
- Experienced field support in areas of safety, equipment, applications
- Goal is response within 24 hours