



Industrial & Refinery Treatment Programs

Technologies for a clean environment





*US Peroxide can supply
27% Hydrogen Peroxide
(Refinery Grade) - A safer
Class 1 Oxidizer*



Oil, Gas & Refinery

US Peroxide has provided treatment solutions to some of the largest refineries in the U.S. Our turn-key treatment technologies can enhance your existing refinery wastewater programs and solve your most challenging problems. Our full-service, "hands off" solutions include chemical treatment applications, storage and dosing systems, and technical expertise. Our programs include refinery safety support services.

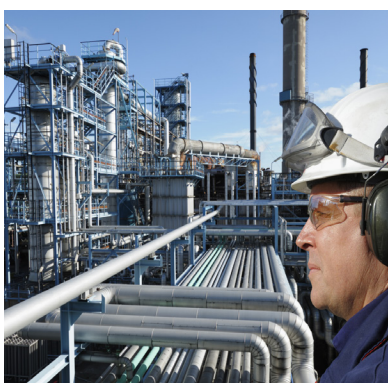
Reduced Sulfur Compound Treatment for Refinery Wastewater

Sulfur compounds, such as hydrogen sulfide (H_2S), thiosulfates and mercaptans, can present serious refinery wastewater problems. Hydrogen Peroxide treatment is a cost effective way to treat these reduced sulfur species.



High Strength Wastewater Pretreatment

Hydrogen Peroxide is a versatile, dependable and environmentally compatible oxidizing agent. The relative safety and simplicity of its use as an oxidizer has led to the development of a number of applications in refinery wastewater systems.



Supplemental Dissolved Oxygen to Reduce BOD and COD

Hydrogen Peroxide has been used to reduce BOD and COD in refinery wastewater for many years in:

- Supplemental Dissolved Oxygen (DO) when biological treatment systems experience temporary overloads or equipment failure.
- Predigestion of wastewater which contains moderate to high levels of compounds that are toxic, inhibitory or recalcitrant to biological treatment.

Hydrogen Peroxide can be used as a stand-alone treatment or as an enhancement to existing physical or biological treatment processes, depending on the situation.

Full Service Programs

Full-service programs successfully integrate storage and dosing equipment systems, chemical supply, inventory and logistics management, and ongoing field and technical support. Our comprehensive operations and program management approach provides cost effective “hands-off” solutions to our customers.



Chemical Supply/Logistics

We specialize in chemical logistics and supply management services. Partnering with the top four Hydrogen Peroxide producers, we currently maintain access to the most comprehensive supply and distribution network, assuring customers an uninterrupted supply and competitive pricing.

Bulk & Mini-Bulk Solutions

We offer many programs to assist with the safe storage, handling and use of Hydrogen Peroxide and other chemicals. “Mini-Bulk” chemical storage options range from 500 to 3,000 gallons with systems customized to usage patterns, space availability, and terminal locations.



Rapid Response

US Peroxide is uniquely positioned to rapidly respond to your environmental treatment challenges. We combine experienced applications and equipment field support with a large inventory of storage systems and pumping modules to respond quickly to your time sensitive situations.

Turn-key Systems

We maintain many off-the-shelf designs for quick response situations. Systems can be designed for permanent treatment programs or trial/pilot programs. Each has secondary or site containment, integrated control systems and low voltage power requirements for ease of installation.

The US Peroxide *Advantage*

Cost effective solutions for Industrial, and Oil, Gas & Refineries



Consultative Approach

Applications expertise

Program optimization saves money



No Capital Outlay Required

Equipment & engineering included



Meet Compliance Goals

Advanced controls and ongoing monitoring

Rapid Response

Examples of where our Rapid Response Program has successfully addressed treatment challenges include the following:

Supplemental DO

Temporary application of Hydrogen Peroxide as a source of supplemental dissolved oxygen in biological treatment systems during periods of excessive BOD loading

Reduce BOD/COD

Hydrogen Peroxide pretreatment of high strength wastewater to reduce toxicity or BOD/COD prior to biological treatment

H₂S Odor Control

Emergency Hydrogen Peroxide treatment of lagoons or ponds to control hydrogen sulfide (H₂S) and other odors

Shock Cleaning

Shock cleaning of cooling water systems for biofouling and slime control

Our Applications Engineers and Equipment and Engineering Services teams will provide timely and thorough applications assistance and technical support during the entire project.



Fenton's Reagent can be applied to wastewater, sludge, or contaminated soils, with the effects being:

- Organic pollutant destruction
- Toxicity reduction
- Biodegradability improvement
- BOD / COD removal
- Odor and color removal



Fenton's Reagent Case Studies

Fenton's Reagent is used to treat a variety of industrial wastes containing a range of toxic organic compounds (phenols, formaldehyde, BTEX, and complex wastes derived from pesticides, petroleum refining, wood preservatives, plastics additives, and rubber chemicals).

Refinery - Southeast US

The existing treatment process system (ozone) required significant maintenance and was not providing effective treatment of COD, phenols and other organic compounds in a 15 GPM scrubber blowdown stream.

We conducted successful 6-month full-scale demo of the technology resulting in optimization of chemical dose requirements. It is now a permanent part of the overall facility wastewater treatment process.

US Peroxide supplies the catalyst, Hydrogen Peroxide, and turnkey storage and dosing systems for both chemicals. Supply scope includes ongoing equipment maintenance, remote tank monitoring/inventory management, and applications services.

Phenol Contaminated Wastewater at Chemical Plant - Southeast US

A large chemical plant had three million gallons of process wastewater contaminated with phenols. They diverted it to large storage tanks and finding a temporary pretreatment solution quickly was critical, as the volume of contaminated wastewater used nearly all of the plant's storm-water storage capacity.

US Peroxide quickly mobilized and applied the Fenton's reaction to proceed overnight; the plant lab confirmed that phenol levels had dropped to below the 0.2 mg/l goal. The treated wastewater was then pumped to the biological treatment plant with no treatment upsets or discharge violations. All was accomplished in five days.

Wood Treating Facility - Western US

Discharge violations (NPDES) to a municipal collection and treatment system caused by phenols, naphthols and cresols needed to reduce compounds by >95%

We conducted lab scale "treatability" tests, followed by a 6-month full-scale demonstration to optimize chemical dose requirements, as well as design of the full-scale process. The Fenton's process is now a permanent part of the overall facility wastewater treatment process.

US Peroxide supplies the iron catalyst, Hydrogen Peroxide, and turnkey storage and dosing systems for both chemicals.

Mini-Bulk and Bulk Solutions

US Peroxide offers many programs to assist with the safe storage, handling and use of Hydrogen Peroxide and other chemicals. Our Bulk and Mini-Bulk systems are recognized as “best in class” with over 15 years of demonstrated quality and reliability handling multiple chemicals. Our systems are modular in nature with each module fabricated and thoroughly tested prior to shipment.

Mini-Bulk Program

With this program, customers have transitioned from labor intensive and higher risk drum and tote handling programs to a hands-off low risk Mini-Bulk Program realizing the following benefits:

- Improved safety – personnel exposure eliminated with our full service programs
- Reduced personnel costs for chemical management
- Equal or better chemical program costs
- Exemption from DHS registration

Bulk Program

We also specialize in Bulk chemical supply programs for higher usage applications or where logistics require freight optimization for full tank truck deliveries. For these locations we offer tanks from 5,000 to 10,500 gallons in double wall configuration and up to 15,000 gal in single wall designs. Each tank regardless of size is designed and fabricated to strict US Peroxide standards that exceed those of the industry.

Mini-Bulk Drum/Tote Conversion

Our “Mini-Bulk” Program is one of the most popular programs we offer and is especially valued by those looking to eliminate higher risk and labor intensive drum/tote handling. As with all programs offered by US Peroxide, the “Mini-Bulk” Program is a Full Service Program and includes the following elements:

- Technical applications assistance
- Customized system engineering and design
- System installation and commissioning
- Modular design for ease of installation
- System service and maintenance
- Dosing module – 2-pump duplex or triplex with installed spare
- Turn-key equipment supply
- Tank module – integrated secondary containment
- Chemical supply and inventory management
- Control module – custom program capable

Hydrogen Peroxide Storage and Safety

Hydrogen Peroxide stored and handled in a safe manner can be integrated into almost any environment. Under normal conditions and when properly stored, it is extremely stable. Compared to other widely used municipal and industrial chemicals, Hydrogen Peroxide has a lower hazard rating making it easy to integrate into existing and new facilities.

Hydrogen Peroxide Class 1 Oxidizer

For customers interested in using less hazardous materials, US Peroxide can provide Hydrogen Peroxide as a Class 1 Oxidizer (27%) or as a non-rated chemical (<8%). Other concentrations are available upon request.



Hydrogen peroxide with catalyst



USP-5000 with seismic option

/// Our customers say our approach to solving wastewater problems sets us apart ///

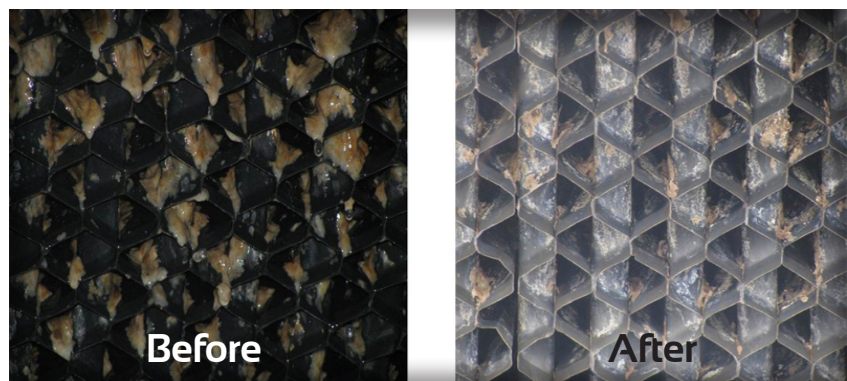
We're more than peroxide

The Industrial market has long benefited from the implementation of Hydrogen Peroxide-based solutions to solve a variety of water, wastewater, and air pollution treatment challenges. As an environmentally "green" technology combined with the industry's most knowledgeable applications experts, US Peroxide can tailor a solution to your needs.

From onsite consultation and technology fit assessments to laboratory treatability testing and full scale field demonstrations, US Peroxide has a proven track record of successful peroxygen based treatment programs.

- **Rapid Response**
- **Refinery and Petrochemical Applications**
- **Supplemental Dissolved Oxygen**
- **High Strength Wastewater Pretreatment**
- **Nitrogen Oxides (NOx) Abatement**
- **Cooling and Process Water System**
- **Anti-microbial Applications**
- **Gas Scrubbing**
- **Iron/Metals Removal**
- **Filamentous Bulking Control**
- **BOD/COD Removal**
- **Inorganic Toxic Pollutant Destruction**
- **Sulfide Oxidation**
- **Fenton's Reagent**
- **Reduced Sulfur Compound Treatment**
- **Cyanide Treatment**
- **Dechlorination**
- **Arsenic Removal**
- **Organic Toxic Pollutant Destruction**
- **Formaldehyde Oxidation**
- **Mercaptan Control**
- **ISCO Remediation**

Cooling Tower Cleaning





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About US Peroxide

US Peroxide is the leading supplier of peroxygen-based technologies and services for environmental applications. We have been serving the water, wastewater and remediation markets for over 15 years and have offices and field service locations throughout North America.

Our consultative approach to problem solving includes application assessment, technology selection (which may include lab scale testing, if necessary) and development of a tailored treatment approach. Our full-service programs successfully integrate storage and dosing equipment systems, chemical supply, inventory and logistics management, and ongoing field and technical support. **This approach provides cost-effective "hands-off" solutions to our customers.**

Getting Started

We look forward to supporting your wastewater treatment needs, whatever the scale of your requirements. To obtain a streamlined treatment solution tailored to your specific need, please contact give us a call.