

# CAIROX<sup>®</sup>-CR Extruded Potassium Permanganate Successfully Controls Hydrogen Sulfide Odors at a Remote Site

## Case History

### Site

A remote municipal wastewater collection system that is experiencing high levels of hydrogen sulfide.

### Problem

Franklin Township Sewer Authority operates a 250,000 gpd pump station near a developed area of the township. Because adequate utilities (electrical power and water) were not readily available at this remote site, the pump station was left untreated. However, the Authority was concerned because periods of low flow at the station were producing hydrogen sulfide readings as high as 82 ppm, even during cool spring weather. Also, the Sewer Authority was receiving frequent neighborhood complaints about strong hydrogen sulfide odors coming from the station.

### Solution

Due to the lack of adequate utilities, the use of chemical feed equipment for standard CAIROX<sup>®</sup> potassium permanganate odor control treatment was impractical. Carus Chemical Company recommended CAIROX<sup>®</sup>-CR, a newly developed product, to control hydrogen sulfide problems at this remote site. As the weather grew hotter in early summer, Carus and Franklin Township personnel conducted a field test of the new controlled release product at the remote pump station. During the field testing in the spring of 1999, approximately 40 lbs. of the CAIROX<sup>®</sup>-CR extruded product was placed in a specially designed polyester mesh bag. No mixing of the product was required. The bottom of the bag was then lowered 6 inches below the water level at the inlet to the pump station. The next day a meter was installed to measure hydrogen sulfide in the station. Over the next 24 hours, H<sub>2</sub>S readings ranged from 0-12 ppm (down from 82 ppm), resulting in a 74% drop in average H<sub>2</sub>S levels compared to readings obtained in the spring.

Two days later, the CAIROX<sup>®</sup>-CR product feed was increased by lowering the bag an additional 2 inches into the water, for a total submersion of 8 inches. No additional product was added to the bag. Five days later, the meter was re-installed and readings were again taken over the next 24 hours. Hydrogen sulfide levels during the period registered from 0-5 ppm. These levels represented an additional 23% drop in average H<sub>2</sub>S levels, for a total reduction of 97% compared to the spring readings. In fact, application of CAIROX<sup>®</sup>-CR reduced hydrogen sulfide to below detectable levels for nearly 19 of the 24 hours and for extended periods of up to 9 hours.

During 10 days of testing at Franklin Township, no additional CAIROX<sup>®</sup>-CR was added to the application bag. The testing used only about 1/4 of the original 40 lbs., or approximately 1 lb./day. The average treatment cost was about \$3.50 per day.

### Conclusion

The experience at Franklin Township clearly demonstrates the effectiveness of the controlled release CAIROX<sup>®</sup>-CR extruded potassium permanganate in controlling hydrogen sulfide at remote wastewater sites. Based on such performance, practicality and cost effectiveness, the Franklin Township chose to continue treating their remote pump station with CAIROX<sup>®</sup>-CR product. Hydrogen sulfide levels continue to be extremely low and customer complaints have been eliminated.

For more information about CAIROX<sup>®</sup>-CR extruded potassium permanganate product characteristics and availability, contact Carus Chemical Company at 1-800-435-6856.

---

## Other Applications

---

- Manholes
- Thickeners
- Lift Stations
- Clarifiers
- Toxicity Reduction
- Acid Mine Drainage

---

## Carus Value-Added

---

### LABORATORY SUPPORT

Carus Chemical Company has technical assistance available to answer questions, evaluate treatment alternatives and perform laboratory testing. Our laboratory capabilities include; Feasibility Studies, Treatability Studies and Analytical Services.

### FIELD SERVICES

As an integral part of our technical support, Carus provides extensive on-site treatment assistance. We offer full application services, including technical expertise, supervision, testing, and feed equipment design and installation in order to accomplish a successful evaluation and/or application.

### EQUIPMENT SERVICES

Standard feeders are designed specifically for CAIROX® potassium permanganate. Various options and accessories are available to meet a wide range of applications. Custom-Engineered Feed Systems are complete, pre-engineered and pre-packaged systems. They provide efficient, dust-free methods of storing, mixing, and feeding CAIROX® potassium permanganate. System designs are customized to meet specific applications and customer needs.

### ADDITIONAL TECHNICAL BULLETINS

CAIROX®-CR Fact Sheet (Form # CR 1801)

Potassium Permanganate controls sewage odors (Form 310)

The CAIROX® Solution System: The Perfect Solution to Complaints about Wastewater Treatment Plant Odors (Form # CX 4900)  
Equipment Selection and Application Guide (Series 2000)

### CARUS CHEMICAL COMPANY

During its more than 85-year history, Carus' ongoing reliance on research and development, as well as its emphasis on technical support and customer service, have enabled the company to become the world leader in permanganate, manganese, oxidation, and base-metal catalyst technologies.

Carus Chemical Company

315 Fifth Street

P. O. Box 599

Peru, IL 61354

Tel. (815) 223-1500

Fax (815) 224-6697

Web: [www.caruschem.com](http://www.caruschem.com)

E-Mail: [salesmkt@caruschem.com](mailto:salesmkt@caruschem.com)



---

The information contained is accurate to the best of our knowledge. However, data, safety standards, and government regulations are subject to change; and the conditions of handling, use or misuse of the product are beyond our control. Carus Chemical Company makes no warranty, either express or implied including any warranties of merchantability and fitness for a particular purpose. Carus also disclaims all liability for reliance on the completeness or confirming accuracy of any information included herein. Users should satisfy themselves that they are aware of all current data relevant to their particular uses.

---

Form # 10500

Copyright® 1999

CAIROX® is a registered trademark of Carus Corporation.



(CARUS and Design) is a registered service mark of Carus Corporation.

Responsible Care® is a registered service mark of the American Chemistry Council.

Revised 1/04