



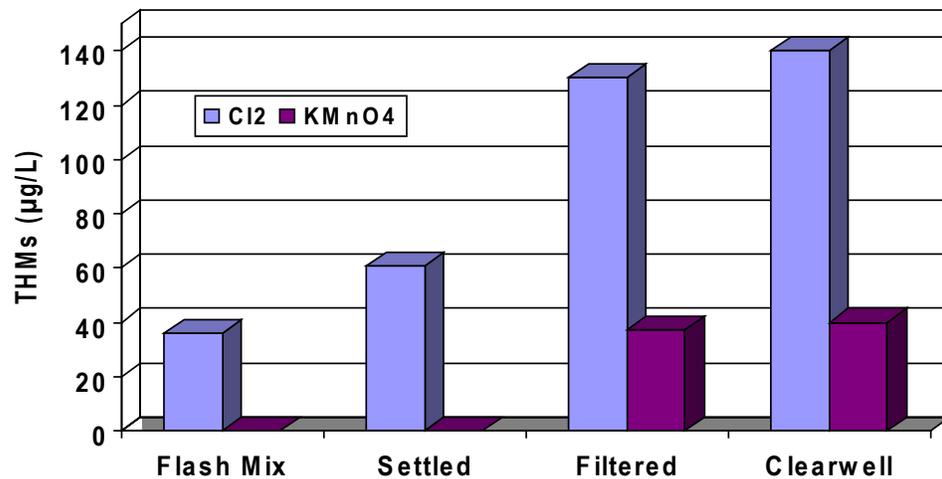
BACKGROUND

The Elsinore Valley Municipal Water District (E.V.M.W.D.) is located in south central California just west of Los Angeles. The District covers a service area of 96 square miles, providing water and sewer services to over 86,000 persons. The average daily water demand is 37 MGD. Of that volume, 33 percent is well water, 37 percent is imported water from other districts, and the remainder is surface water. The potential for Trihalomethane (THM) formation was from the surface water. Because of the potential for high THM formation, it was decided to evaluate CAIROX® potassium permanganate as an alternative pre-oxidant to chlorine.

CAIROX EVALUATION

Full-scale evaluation of permanganate was conducted in April 2000. CAIROX was applied at the intake from Canyon Lake. The results of the full-scale evaluation are shown below. As seen, a significant reduction in the amount of THMs formed is realized when potassium permanganate is the pre-oxidant.

Pre-Oxidation: Potassium Permanganate vs. Chlorine for THM Control



CONCLUSIONS & OBSERVATIONS

CAIROX potassium permanganate effectively:

- Replaced chlorine as a pre-oxidant.
- Controlled THM formation in the plant and distribution system.
- Improved floc settling, aided in coagulation, and reduced polymer usage.
- Reduced T&O complaints (musty, fishy) from 5-10 per month to 0.
- Controlled Fe/Mn episodes.

For further information on CAIROX® potassium permanganate product characteristics and availability, contact Carus Corporation at 1-800-435-6856.



CARUS VALUE ADDED

LABORATORY SUPPORT

Carus Corporation has technical assistance available to answer questions, evaluate treatment alternatives, and perform laboratory testing. Our laboratory capabilities include; treatability studies, feasibility 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.

ENGINEERED SYSTEMS AND EQUIPMENT SERVICES

Standard feeders are designed specifically for CAIROX potassium permanganate. Various options and accessories are available to meet a wide range of applications. Carus offers custom-engineered feed systems, pre-engineered and prepackaged systems through an equipment partner. 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.

REFERENCES

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Ma, J., Graham, N., Controlling the Formation of Chloroform by Permanganate Pre-oxidation-Destruction of Precursors, *J Water SRT-Aqua*, Vol.45, No.6, (1996)

CARUS CORPORATION

During its more than 100 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.

ACKNOWLEDGEMENT

Carus Corporation would like to thank Julius Ma and Dan Herbert from the Elsinore Valley Municipal Water District for their valued assistance in providing the information presented here.

Permanganate products are not registered as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act administered by U.S. EPA or similar state laws. Use as a pesticide is not government approved.

CARUS CORPORATION

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