



TONKAZORB™

Advanced Radium Removal Technology



Tonka Water, a U.S. Water Brand, and Hawkins, Inc. team up to bring you an NSF-approved, pre-formed HMO solution available in bulk delivery – TonkaZorb™

Radium Removal Technologies



TonkaZorb™ technology is well-suited for new small- and medium-sized systems due to its economical cost as well as its ease of operation.

Hydrous Manganese Oxide (HMO)

Hydrous manganese oxide (HMO) addition is identified by the USEPA as an acceptable technology for radium removal in groundwater supplies. This technology is well-suited for new small- and medium-sized systems due to its economical cost as well as its ease of operation. In addition, HMO technology can easily be integrated into existing water treatment facilities currently removing iron and/or manganese. The HMO process takes advantage of the natural affinity of radium to adsorb onto manganese oxides. The treatment process involves the preparation and controlled dosage of a pre-formed manganese oxide solution fed to raw water prior to filtration. Radium is adsorbed on the surface of the added HMO particles, which are subsequently filtered. Because the HMO is backwashed out of the filter media; radium accumulation (a serious disadvantage of other processes) does not occur. The pre-formed HMO treatment approach for radium removal has been extensively studied and documented in an American Water Works Association Research Foundation (AWWARF) study conducted by Dr. Richard Valentine, Professor at the University of Iowa.

Pre-Formed (HMO) Feed System

There are several issues that should be considered when designing an HMO feed system. A major concern in feeding HMO involves the mixing of chemicals. Achieving uniformity and precise solution strength of the HMO feed system is a crucial factor in efficient radium removal. Mixing a stabilized HMO solution of consistent concentration each and every time the batch tank runs empty is a difficult and tedious task. Even slight inconsistencies will affect the radium removal efficiency of the system. Tonka Water and Hawkins realized the importance of maintaining stringent quality control of HMO solution, which led to the development of TonkaZorb.™

TonkaZorb™

TonkaZorb™ is an NSF-approved, pre-formed HMO solution available in bulk shipments delivered to your water treatment plant. TonkaZorb™ can be made available to any water plant in the 11 Upper Midwest states serviced by Hawkins' delivery route system. Having pre-mixed, pre-formed HMO delivered right to your door eliminates the need for operator mixing of the solution on site. This is advantageous for several reasons highlighted below.

Advantages of Pre-Mixed HMO

First, TonkaZorb™ undergoes regular quality assurance testing to ensure correct solution strength, particle sizing, and solution stability. When TonkaZorb™ arrives at your water treatment plant, you can be assured it's the same consistent quality every time. This eliminates the need for chemical feed rate adjustments. Second, using TonkaZorb™ increases overall plant safety. Some of the chemicals required for mixing pre-formed HMO are corrosive, reactive or otherwise hazardous. The TonkaZorb™ solution is stabilized at the factory, and is not considered a safety hazard in its finished form. Therefore, the need to handle and mix hazardous chemicals on site is eliminated; increasing safety for operators. Third, using the pre-mixed solution saves labor costs and simplifies the operator's job.

Tonka Blend™

To address the issues associated with feeding a slurry-like solution, Tonka Water developed the TonkaBlend™ system. Proper engineering considerations in the delivery system are critical to optimal operation and radium removal performance. Since pre-formed HMO is a slurry-like solution that tends to plug feed lines and check valves if not fed properly; careful consideration must be given to the chemical feed system. The TonkaBlend™ system addresses and alleviates these problems.

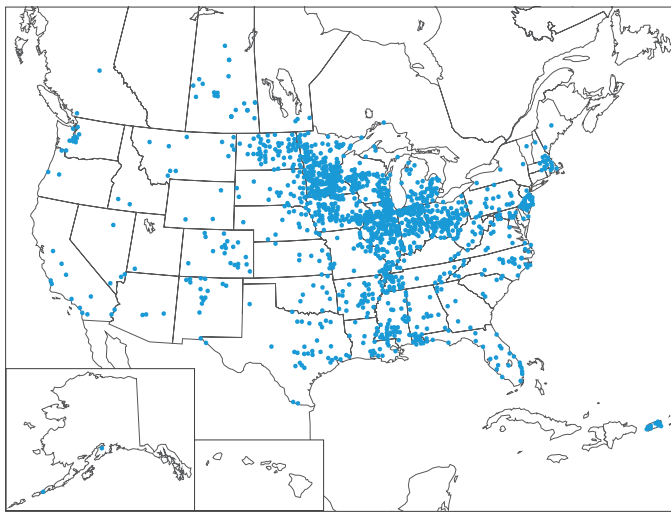
The TonkaBlend™ system is a pre-packaged HMO feed system designed to avoid the potential pitfalls of feeding a slurry-like solution. The TonkaBlend™ system includes all the pumps, valves, piping, and controls necessary to feed pre-formed HMO effectively and protect your equipment. Tonka Water's extensive experience in design, start-up, and operation of pre-formed HMO systems is an important asset for owners and engineers in anticipating and dealing with radium removal systems incorporating pre-formed HMO.

Both Tonka Water and Hawkins have many years (a combined total of over 120) of successful experience in assisting plant owners and operators in finding efficient and effective solutions to water treatment challenges. We are pleased to join hands in offering an innovative solution for radium removal.



Tonka Water and Hawkins have teamed up to bring you the TonkaZorb™ technology.





Tonka Water Guarantee

Tonka Water provides the best custom manufactured water treatment systems in the industry. Our people will deliver excellent service and support for your project from conceptual and cost-effective design, to construction and commissioning; and throughout the system warranty and operational life of the project.

Thousands of quality water treatment installations since 1956.

Why Use TonkaZorb™?

This technology is well-suited for new small- and medium-sized systems due to its economical cost as well as its ease of operation. In addition, HMO technology can easily be integrated into existing water treatment facilities currently removing iron and/or manganese.

System Advantages

- Eliminates occurrence of radium accumulation
- Eliminates the need for chemical feed rate adjustments
- Eliminates need to handle and mix hazardous chemicals on site
- Saves labor costs and simplifies the operator's job
- Feeds pre-formed HMO effectively and protects equipment

Call us today to learn more about a safer, more consistent, and less labor-intensive approach to the HMO treatment process.



763.559.2837
www.tonkawater.com
Tonka Water, a U.S. Water Brand

 **U.S. WATER**
The *future* of water™