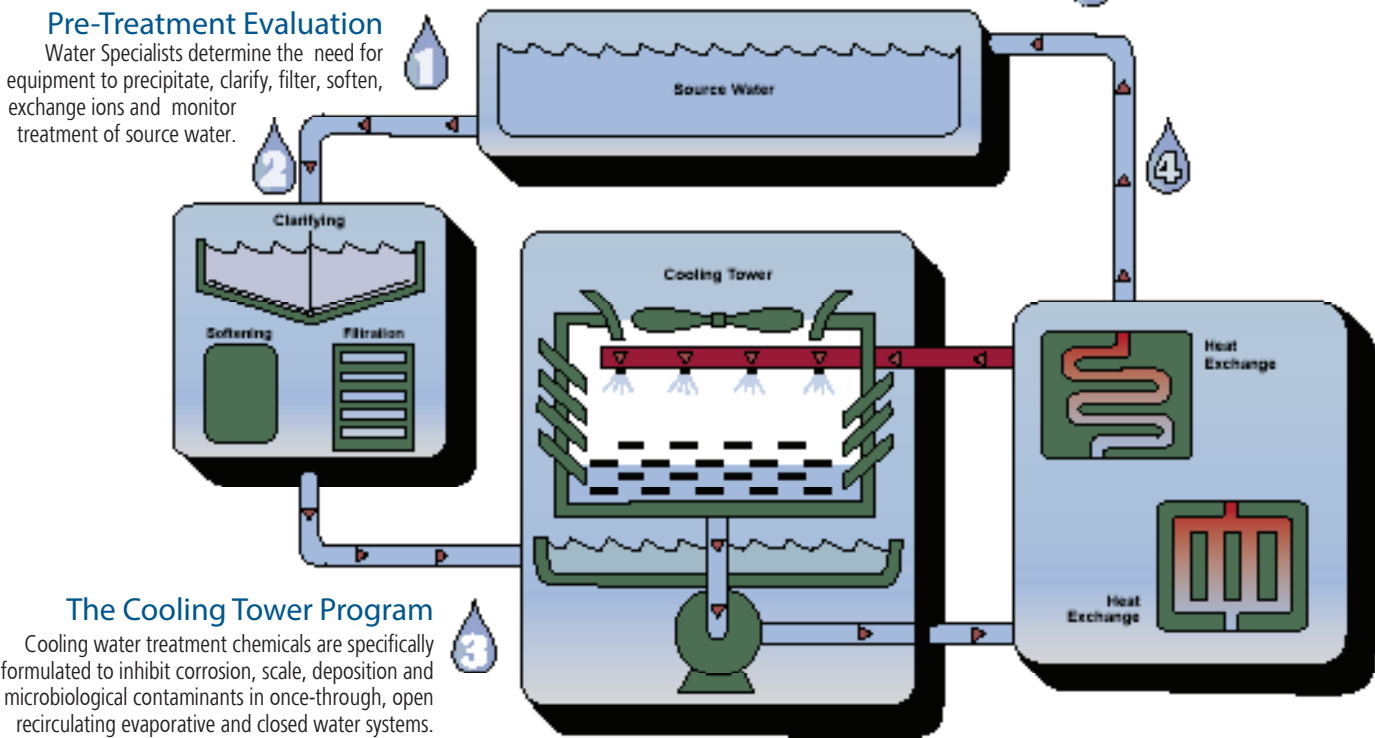


# Rochester Midland: THE WATER ENERGY SPECIALISTS

**Supply Water Analysis**  
Rochester Midland determines the content and chemistry of incoming water through sampling and analysis. Seasonal and other factors are considered for an effective treatment program.

**Waste Stream Analysis**  
**Evaluation of Discharge Water for Make-Up Reuse-**Water discharges, including blowdown and process waters, can be evaluated to determine the treatment and costs involved in preparing them for re-use. Recycling these waters effectively reduces disposal costs. In addition, Rochester Midland also offers waste treatment programs.



**Process Equipment**  
**Clean Surfaces** -By continuously monitoring the water system, Rochester Midland's program keeps heat exchangers and condensers clean. Significant energy, water and chemical savings are possible. Feeding and control equipment can be manual, semi or fully automatic, and can apply chemical formulations in powder or liquid form. Products are safe to handle, easy to apply and provide minimal inventory requirements.

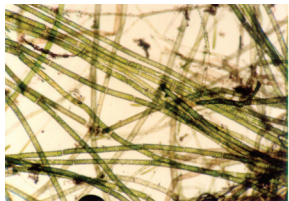
## Microbiological Control

### Biocides - ML Series

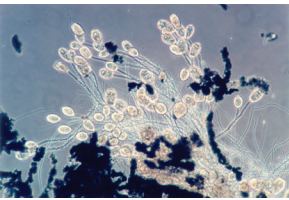
Algae, bacteria, fungi and slime often exhibit excessive growth in open recirculating water systems although they are encountered even in once-through cooling systems. Treatment involves the use of oxidizing and non-oxidizing biocides. All biocide formulations are EPA registered.

### Program Features

- Cooling water system survey
- Water sampling to determine flow patterns and rates
- Laboratory analysis of samples for microorganism presence, when necessary
- A customized Rochester Midland Program including an alternating or



Algae at 40X from cooling tower slime



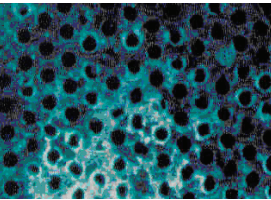
Vorticella cluster from cooling tower slime.

multi-component biocide program, balanced for compatibility with all other chemicals in the water system

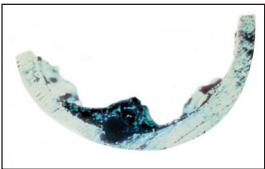
- Instructing your cooling system operators on how, and when to use Rochester Midland Test Kits to check for program effectiveness

### Cooling Tower/Heat Exchanger Benefits:

- Reduces under-deposit corrosion and fouling due to microorganism growth
- Keeps heat transfer performance close to original efficiency
- Minimizes microorganism invasion and growth.
- Improves heat utilization and reduces energy consumption
- Produces cleaner cooling surfaces for better inhibitor action



Fouled heat exchanger



Microbiologically induced corrosion

## Advanced Oxidation

This process replaces other oxidizing biocides and reacts thirty one hundred times faster than chlorine. The lower use concentrations maintain biological control, eliminating the need for other bacteriological control agents. Environmental discharge considerations are minimized by this process. The Advanced Oxidation process is completely compatible with our scale and corrosion inhibitor programs. Heat exchangers, cooling towers, basins, and distribution piping are kept biologically clean for most efficient heat transfers and minimum maintenance. When other biological control programs fail, the Rochester Midland Advanced Oxidation process will succeed. The expandable modular design will accommodate any increased need for ozone.

## Advanced Oxidation Process Features

- Highest oxidation levels
- No chemical handling
- Easy to install and operate



Advanced oxidation system

## Water and Energy Savings

### Scale Prevention/Deposit Control

Programs control the formation of water deposits caused by precipitation or crystallization of calcium carbonate, calcium sulfates, silicates, iron and magnesium salts. Our new control methods include a wide variety of polymeric flocculants, dispersants and antifoulants. They distort, disperse and/or prevent scale crystal formation. Synthetic dispersants provide better solids dispersion and assist in keeping heat transfer surfaces clean.

### Program Features

- Reduced maintenance
- Minimization of downtime
- Improved thermal efficiency
- Reduced energy usage

### Energy Check List For Cooling Systems

1. Clean heat exchangers:
  - Monitor inlet and outlet temperatures regularly
  - Maintain the prescribed dosages of sequestrants and antifoulants
  - Control corrosion with inhibitors
2. Clean cooling tower:
  - Inspect regularly for biological growth
  - Add biocides at the recommended dosages and intervals
  - Inspect tower fill, distribution decks and spray headers
3. Proper bleed-off and chemical control
  - Establish the optimum bleed rate for the system
  - Use automatic control of bleed-off and chemical feed for consistent results

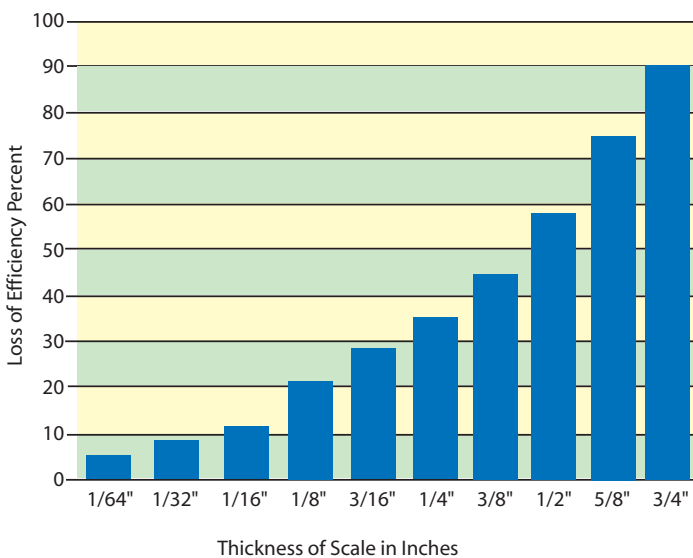


Before



After

## Efficiency Loss Caused by Scale Accumulation



## Corrosion Inhibition

Programs protect against corrosion either from dissolved oxygen release and/or low pH conditions. Corrosion inhibition results in one of three ways: inhibitor molecules form a protective film on the metal surface; cause the metal to form its own protective film; or, react with a corrosive substance in the water. Our blend of anodic and cathodic inhibitors provide maximum metal corrosion protection.

## Rochester Midland's Commitment

Rochester Midland treatment programs provide superior products and performance for virtually every water-using application. Our total water management approach is backed by a comprehensive TQM Process in all support groups to assure the highest product and service quality from our water treatment specialists to our office, laboratory, manufacturing and warehousing teams in plants and offices throughout the US, Canada, UK, and Ireland.

## Rochester Midland Water Energy Division

### Recirculating Cooling Water Programs

The Rochester Midland CS-Series products provide a liquid blend of organic and inorganic chemicals for Recirculating Cooling Tower Systems to prevent scale and corrosion. They are particularly effective in preventing calcium carbonate and calcium sulfate scale formation. They are also effective in maintaining dispersancy of silt, sand and airborne dirt at a significantly lower cost than required by other treatments. All CS-Series programs are designed to provide superior heat exchanger efficiency.

### Deposit Control Programs

The Rochester Midland CS-Series Dispersants are special blends of dispersing agents and sequestering agents for control of deposition. The specialized dispersants are blended to control scale, sludge, iron oxide, mud, silt, oil, clay, calcium sulfate and biomass, in an aqueous system.

### Microbiological Control Programs

The Rochester Midland ML-Series provides microbiological control for cooling tower, closed, once through, air washer and evaporative condenser systems. The Rochester Midland Biocide Programs are designed to control the growth of bacteria, algae, fungi and slime at the most cost effective level to provide optimum heat exchange.

### Closed-Loop Treatment Programs

The Rochester Midland CLT-Series provides a liquid blend of organic and inorganic chemicals to inhibit corrosion and pitting in closed systems. These programs are designed to function at high and low temperature ranges. They are also designed to be compatible with glycol-water systems.

Call Rochester Midland toll free U.S. at 1-800-238-4349  
Call Rochester Midland toll free Canada at 1-800-387-7174



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Improving human health, industrial productivity and the workplace environment — that's what we at Rochester Midland are all about. Call us today so we can get started on your integrated solution.

# WATER ENERGY COOLING PROGRAMS



Providing Water and Energy Savings  
With Environmentally  
Safe Chemicals Through  
Cost Effective Programs

