



# ProChemTech International, Inc.

Apache Junction, AZ and Brockway, PA

## Company Profile

**Overall:** The Company was chartered as a privately held Delaware corporation in 1987 by its current managers, Mary K. Keister and Timothy E. Keister, CWT. Market strategy is based upon the fact that there is little innovation in the water management field and that no supplier provides integrated water management programs combining innovative chemical products and equipment; on-site service; environmental, health, and safety expertise; systems design ability; and manufacture of both chemicals and equipment. We believe that this mix of capabilities is required to design the innovative water management programs needed to address the many operating, economic, safety, health, and environmental problems generated by heating, cooling, and process water use.

The firm is unique in the water management field as it has a strong industrial heritage from the glass industry, not another water management firm, and is based on extensive expertise in research & development, environmental & traditional engineering, equipment & systems design, and manufacture of both chemicals and equipment.



Glass Plant

**Innovative Technology:** Innovative products are the keystone of our ability to compete against the many large, and small, marketing and sales driven firms in the water management business. One innovative patent pending product specifically addresses the need to reduce the environmental impact of microorganism control in cooling waters; our “**ElectroBrom**” biocide technology is the only effective, completely non-hazardous biocide<sup>12</sup>, a “**GREEN**” technology.



We currently manufacture electrolytic units in three size ranges, our **ElectroBrom**<sup>tm</sup> series, shown at the left, which are available with bromine outputs from 10 to 60 lb/day. These units are designed to be used on larger cooling tower systems, from 1,000 tons capacity to power station units.

The smaller **MiniBrom**<sup>tm</sup> units, at the right, are a lower cost unit for cooling towers from 50 to 2,000 tons thermal capacity while the sidestream **SSBrom**<sup>tm</sup> is good to 8,000 tons.



In cooling water systems better control of treatment chemicals provides significant benefits as to lower operating costs, prevention of scale, corrosion, and deposition; and reduced environmental, **green**, impact via use of only enough product to accomplish the job. Our unique **BlueTrace**<sup>tm</sup> tracer colorant along with the **BlueTrak**<sup>tm</sup> automatic controller<sup>3</sup> provides a cost effective, quantum leap in performance over previous means for control of treatment chemical level in cooling water.



Shown on the left is a **BlueTrak** spectrophotometer unit, interfaced with an Advantage MegaTron controller unit, installed for chemical feed control in an industrial cooling tower system. We have also discovered that **BlueTrace** treated cooling waters require less biocide for algae control as the faint blue tint imparted to the cooling water by our tracer colorant reduces the light needed for algae to grow, thus reducing its growth.

Replacement of molybdate, a commonly used heavy metal tracer, with **BlueTrace**, a non-toxic, biodegradable organic, provides an additional **green** environmental benefit. In addition, since a hand held spectrophotometer is used for control testing with no chemical reagents used; the storage, handling, and disposal of hazardous chemical test reagents is eliminated, cutting costs and reducing environmental impact.



We have addressed the twin topics of scale control and **water use** in cooling tower systems by development of a new patented technology<sup>4</sup>, **SofTek**<sup>tm</sup>, which allows use of highly corrosive cycled soft water in cooling towers. The total elimination of scale obtained by use of **SofTek** provides substantial economic and environmental benefits by reducing the energy needed to operate process and comfort cooling systems. Scale at a thickness of 0.15 mil decreases heat transfer efficiency so that operating costs increase by 3.5%, increased scale thickness to 1.5 mil results in an operating cost increase of 12.5%.

Increasing cooling tower cycles with SofTek reduces water use by reduction, or elimination, of blowdown. **Where there is a need to reduce water use to a minimum, Zero Blowdown Technology (ZBT) is an extension of SofTek.**

In addition to the environmental benefit of reduced water use, the discharge of treatment chemicals is also minimized by this technology, thus giving two specific green benefits. A recent ZBT project at the LEED Platinum certified Tempe Transportation Center, City of Tempe, AZ, shows a water use reduction of 756,000 gpy on a 176 ton cooling tower system by going from three (3) cycles to zero blowdown. This project is also equipped with a BlueTrak controller and a MiniBrom unit.



Shown is a set of 90 day exposure corrosion coupons as received from a cooling tower operating with a SofTek water management program. Note that SofTek chemistry is non-toxic and has been approved by various environmental agencies for both direct stream and sanitary sewer discharge.



Maximum recycle and reuse of industrial wastewater, a green technology, is part of our industrial heritage and this specialized knowledge has been extended by ProChemTech to many other industries. In fact, our success in this area has made the Company a world leader in wastewater treatment, recycle, and reuse technology. Our ability to custom manufacture chemical products designed specifically for individual treatment systems is a unique resource for maximum recycle or reuse.

We have been manufacturing advanced design inclined plate clarifiers since 1989 and have perfected the design to the point where filtration is typically not needed following clarification, totally eliminating a process step. These clarifiers have been used in many zero discharge industrial process wastewater systems where the wastewater is processed and recycled to the production process, or reused in another process or as cooling tower makeup. A recent project where our wastewater chemical and clarifier technology was put to sound environmental use is the Blue Valley Fish Culture Station<sup>5</sup> in Brandy Camp, PA. In this project abandoned mine drainage is treated using one of our clarifier systems and used as makeup to a trout raising facility.



Abandoned mine drainage water to fish culture tank makeup using our advanced design inclined plate clarifier. Clarifier effluent is less than 0.3 ntu on average.

The Blue Valley Fish Culture Station raises 15,000 trout per year from fingerling to stocking size in eight months due to the consistent 50 F temperature of the mine discharge water.



**Cooling Tower Systems:** Design and installation of cooling tower systems for industrial applications has been an area of activity since start-up of the Company. One of our first projects was a design-build cooling tower system for a sintered metal parts firm; we have since designed and supplied cooling systems for approximately 80% of such plants in the country. Innovation in design of cooling systems includes

unique arrangements to increase thermal efficiency, reducing the energy used for system operation, and use of engineered plastic corrosion proof cooling towers.

**Consulting Services:** Environmental and engineering services include NPDES and pretreatment permitting, toxics reduction studies, compliance problem resolution, engineering and redesign of wastewater systems, engineering and design of cooling water recirculation systems, wastewater treatability studies, water use audits, wastewater treatment plant troubleshooting, litigation support, and environmental site assessment studies.

**Manufacturing Facilities:** In order to maintain product quality and control costs, ProChemTech has two manufacturing sites to provide nationwide coverage. Plant #1 Brockway, PA, and Plant #2, Apache Junction, AZ, manufacture our complete range of boiler, cooling, water and wastewater chemicals, and assemble various equipment items such as system control panels and clarifiers. Our ability to self manufacture products to custom specification is unique in the water management field.



**Water Management:** We provide a full range of water management services for treatment of boiler, cooling tower, process, and industrial waste waters. Our innovation carries over into all of our chemical products, equipment, and provided services to provide effective, economical water management programs across all types of industrial and commercial businesses. Chemical products, equipment, and comprehensive on-site service, including contract operations, are provided on a nation wide basis.

**Marketing:** Service and sales representatives are located in many metro market areas throughout the country. Associated firms can provide our products and service in many areas where we do not yet have a direct presence.

**Service:** In many of our sales districts, water management programs are marketed and designed by experienced District Managers while routine service is provided by skilled, salaried technicians. Splitting the sales and service functions into two distinct organizations eliminates any tendency to “oversell” products and services, giving our customers the most economic programs possible. Water management program services are customized to the level desired by the customer, from simple supply contracts to complete contract operation.

**ProChemTech International, Inc.**  
**“Innovation in Water Management”**

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<sup>1</sup> “Electrolytic Bromine: A Green Biocide for Cooling Towers”, T. Keister, Water Environment Federation, Industrial Water Quality Conference 2007, paper 11B-B

<sup>2</sup> “Electrolytic Bromine: A Greener Biocide”. T. Keister, Association of Water Technologies, Annual Convention, 2008

<sup>3</sup> “BlueTrak: Automatic Monitoring and control of Cooling Water Treatment Products”, B. Rodden, M. Brody, and J. Sleigh, Association of Water Technologies, Annual Convention, 2008

<sup>4</sup> “Operation of Evaporative Cooling Towers with Minimal or No Blowdown” US Patent No. 7,595,000, US Patent Office, 09/29/09

<sup>5</sup> “Treatment and Beneficial Use of Abandoned Mine Drainage in the Little Toby Creek Watershed”, T. Keister, J. Sleigh, and W. Sabatose, Pennsylvania Association of Environmental Professionals, Annual Conference, 2009