

Looking Beyond Chemical Water Treatment

When you think of an environmentally friendly company, a steel processing plant does not typically come to mind. However, Stripco Inc. of Mishawaka, IN, a manufacturer of production-ready, cold-rolled steel coils, is the exception.



In August of 1995, Stripco made a wise decision that also proved to be cost-effective and environmentally-friendly when they installed a Superior Environmentalist 2000[®] System, in the place of chemicals, to control lime/scale and corrosion on one of their cooling towers. A few months later they installed another Superior system on a second cooling tower.

When calcium, magnesium, and other water-borne minerals are exposed to heat, pressure, friction and other physical changes within water-using equipment, they precipitate out of solution and form layers of calcium carbonate, (commonly known as lime/scale) on the heat transfer surfaces. According to the United States Bureau of Standards, just 1/2" of this mineral scale build-up can increase energy costs by as much as 70%, as it creates a great insulating barrier between the heat transfer surface and the water. Another common concern in water-using equipment is corrosion, especially in situations where the water is aggressive due to low pH, excessive free oxygen content, and under or over chemical treatment.



For years, chemicals have been the traditional and conventional method used to control these problems in heat-transfer equipment. Yet, when the Superior Water Conditioner[®] is used in conjunction with centrifugal separation and filtration equipment (Superior's "Environmentalist/Zero-Bleed 2000[®]"), no chemicals are needed and bleed requirements are totally eliminated.

Prior to Stripco's opening in 1994, Steve Mihojevich, Director of Engineering, recommended that his newly appointed Project Engineer, Richard Smith, check into magnetic water treatment (MWT). Having had prior experience with MWT, Mihojevich felt confident in choosing magnetics over chemicals. Smith, on the other hand, had never used anything other than chemicals and was somewhat apprehensive. However, the thought of the ease and savings this process might offer them over traditional water treatment helped him to be more open to trying something new and different.

Smith said his acceptance of MWT was not easily won, taking him about five years to totally believe in the treatment. Smith went on to say "Problems don't usually happen immediately; they show up years down the road. But after five years without any problems, that's when I was convinced it was working." It has now been 10 years since Stripco began using the Superior Water Conditioners, and Smith says his favorite benefit of the products is the low maintenance and the environmental aspect of them. He mentioned that some of the men in the plant think the ease of their water treatment system is "the norm"; but Smith knows what "the norm" (chemical water treatment) is all about, and is thankful he doesn't have to deal with it any longer.

Over the past decade, by choosing the SWC, along with ultraviolet equipment for biological control, Stripco has eliminated hundreds of thousands of gallons of chemically contaminated water from going to waste and into the environment. They have also saved tens of thousands of dollars in the operation and maintenance of their cooling tower systems by reducing, if not entirely eliminating, expenses in the following, which are usual and customary when chemical treatment is applied.

The cost of:

- *Chemicals
- *Labor of receiving and handling chemicals
- *Testing and continually adjusting chemical dosage
- *Parts, labor, maint. and operation of chemical feed pumps
- *Freight
- *Water test kits and test reagents
- *Periodic outside laboratory testing
- *Storage and disposal/removal of chemical containers
- *Time reporting/permitting of hazardous materials stored/used/disposed
- *Liability insurance
- *Periodic acid cleaning
- *Bleed water
- *Heat transfer loss as a result of lime/scale build-up
- *Corrosion of cooling tower system and equipment
- *Damage to pump and other equipment caused by harsh chemical use

When asked to compare his treatment systems to chemical treatment, Smith emphasized the low maintenance and operating cost of the Superior Water Conditioner[®]. The only work Stripco performs on their conditioners is monitoring the conductivity of the cooling tower water in order to determine if they need to adjust the bleed rate. The bleed rate is approximately 25% less than when treating with chemicals, as Superior's unique treatment process effectively controls mineral scale deposition in cooling systems with cycles of concentration as much as 5-10 times greater than what is required for chemically treated systems to effectively do the same job. "It pretty much runs on its own and we do not have to worry about it," Smith said.

Stripco is delighted they made such a cost-effective decision when they installed their first Superior Water Conditioner[®] ten years ago. They should be commended for the choices they have made resulting in obvious savings in their operational costs as well as their contribution to preventing pollution and preserving our natural resources.

