



## HVAC Chemical Water Treatment, "Green Report"

With the current demand for "Green" products and conservation, we at Specified Technical Sales Ltd. have been reflecting on the past, present and future of HVAC Water Treatment.

The chemical industry has long been looked down on, with the word "chemical" often used in a derogatory fashion. Many times we have seen the term "Chemical Free" been used as a positive selling feature for many products or programs in ours and other industries.

The truth is that the chemical industry has been thinking "Green" for a very long time and likely if you are a HVAC chemical user, you likely are using a product that has a much less environmental impact than products used just 20-30 years ago. Most products that we, and our chemical water treatment competitors sell, are an integral part of your "Green" plan.

Our cooling water products for example, used for scale/corrosion inhibition are a very safe organic phosphate blend. These products are designed to keep water hardness in solution when the cooling water concentrates due to evaporation in the cooling tower, this all while protecting the metal components from corrosion. By recycling this water several times and allowing the concentration of minerals before bleeding off, is a very "Green" approach to cooling and reduces water usage by substantial amounts. Many office towers will use in excess of 90,000 litres of water per day just for cooling tower feed. To do away with chemicals and run once through or reduced cycles, your water usage would be more than double. Be confident, that by adding these very low concentrations of inhibitor, you as an operator/building owner are doing your very best to be "Green".

There are many companies promoting "Electronic Water Treatment Equipment" to install on cooling towers that promise to do away with chemicals but in most cases they also run the towers with no more than two cycles of concentration and while being promoted as "Green", this approach is very wasteful and very costly. We see many products that have a capital cost of more than 10 times a traditional water treatment budget. Others manufacturers claim that their devices can handle high cycling to reduce water usage, but we have seen first hand the deposits left behind in the tower basin. Also, while promoting their equipment as "Chemical Free", this particular equipment requires the addition of bromine or iodine to control bacteria and an inhibitor to protect copper from corrosion, definitely contradictory to the "Chemical Free" claim. The operator/building owner must realize that there may never be a payback especially when calculating in the extra water and corrosion damage that may take place if these units are not providing corrosion control. To do away with chemicals in the name of "Green" is being done every day by many operators/building owners in Calgary and I expect other cities as well. The reality is that equipment repairs and or cleaning is often more detrimental to the environment than properly maintaining the equipment in the first place.

The other consideration for a cooling tower system is biological contamination. It is well documented that cooling towers and other water systems can be a breeding point for Legionella and other bacteria that can cause sickness or death. There should be no experimenting with new technologies that claim to stop these contaminations. The manufacturers written guarantees that they will take on the responsibility and results caused by failures of the claims, may not be enough.

There are some new technologies that are practical and "Green". One very exciting trend we see is the wider acceptance of Ultra Violet Sterilizers being used in domestic systems, spray humidifiers and cooling towers. This equipment generates a U.V. light source that destroys the reproductive system of bacteria as they flow past the light source. This works well but does not kill bacteria found in deposits that are stationary in the equipment so some biocide will still be required but the usage can be drastically reduced. The trade-off for this over a traditional chemical program is that some extra maintenance is required to keep this equipment functioning adequately and the initial purchase cost plus installation costs.

The most recent environmental advance in the HVAC Water Treatment is the introduction of G.E.s new closed system organic inhibitor. This new-patented product, CORRSIELD OR4407 is all new and is not like any other organic closed system treatment on the market. While other products exist, they are similar to the cooling water products and break down in a relative short time, the CORRSIELD OR4407 will not break down in the closed system and therefore will not require constant additions to maintains the recommended level. The field tests and case studies are very impressive and all data suggests that this new product will provide corrosion rates as good as the typical nitrite or molybdate programs. The push to develop this product has come from the down turn in the popularity of molybdenum. Although sodium molybdate has been the choice closed system inhibitor for years, its disposal has become a problem for some waste treatment facilities. When a closed system is drained for any reason, the molybdate generally gets removed in the sludge at the municipal water treatment plant. This sludge is usually broadcast onto fields and the molybdate levels are starting to impact the agricultural sector. Specified Technical Sales Ltd. view ourselves as leaders in this subject as we recently have completed a Canadian government funded study to identify ways of removing sodium molybdate from closed systems without draining the system. Our equipment is installed on-line at full operating temperature for several days to remove the molybdate before adding the new Corrsield OR4407 organic inhibitor. With this new process, we along with GE have successfully completed several molybdate removals to date.

Next to mention, is one more important "Green" product often over-looked. It is GE's Ferroquest FQ7103 Pre-operational cleaner. Ferroquest FQ7103, has a very interesting heritage and it contains a blend of the patented Ferroquest rust dissolver, dispersants, oxygen scavenger, degreasants and surfactants all while being at a neutral pH. The Ferroquest rust remover technology was derived from the chemistry found in **apple peels** and is unique to the industry. This product is very important to the new construction portion of our business. We are involved with many pre-operational pipe cleanings prior to implementing the on-going water treatment program. This step is critical for ensuring that the building systems get a trouble-free start and future problems are prevented. Ferroquest FQ 7103 safely removes oil, grease, flash corrosion and other deposits prior to passivating the metal; where-as the industry standard products have a high pH, contain no oxygen scavenger and do nothing to remove the rust. Remember, the building owner and the Mechanical Engineer have the power to insist on products that work best and have the least environmental impact.

Specified Technical Sales is currently offering our STS Plastic Container Recycling Program and Glycol Recycling Program to our customers. With each of these programs the goal is to keep waste out of our land fills and waste treatment plants while recycling to reuse in other industries. Plastic drums, pails and sample bottles are regularly collected at our head office warehouse. As well, glycol can be dropped off at our warehouse or arrangements can be made for bulk pick-up at site.

All of us share a continued responsibility, in co-operation and partnership with our customers and suppliers, to recognize and follow through with caring for our Earth. Specified Technical Sales is committed to move,, offering as many "Green" choices as possible, while continuing to search for more environmentally conscious options for our customers.

Christopher Wedge C.E.T., President