

## The Presence and Health Effects of Disinfection Byproducts Were a Major Topic at the 14<sup>th</sup> Annual World Aquatic Health Conference

By: Vance D. Fiegel, Co-Founder and Chief Scientific Officer

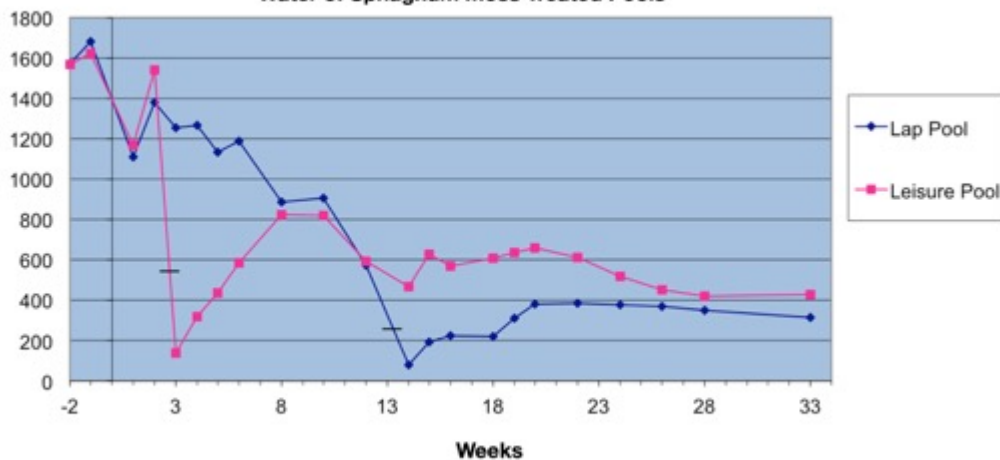
The World Aquatic Health Conference was held in Denver on October 18-20 and it continues to be the premier science and education conference of the aquatic industry. My presentation on “The Relationship Between Organic Load, Disinfection Byproducts and Sphagnum Moss” was just one of many talks on the growing interest, and concern, about disinfection byproducts in recreational water and the surrounding air. In fact, during the two days of the Advanced Chemistry track, seven of the nine presentations were either about the contaminants found in swimming pools and/or the dynamics of disinfection byproduct production and presence in the water and air of natatoriums.

In addition to my presentation on Thursday, Dr. Darla Goeres spoke about the importance of biofilm in recreational water and Dr. Laura Suppes discussed the sources of personal care products and pharmaceuticals in swimming pools. On Friday, the entire Advanced Chemistry track was dedicated to Dr. Ernest Blatchley and his four presentations covering various aspects of disinfection byproduct chemistry and air quality. Topics included chlorine chemistry, the effects of UV treatment, the factors affecting air quality in indoor pools, and mixing in indoor pool facilities.

In addition to the specific topics of each presentation, there was also discussion about how these toxic byproducts lead to unhealthy air and water quality as well as the growing body of evidence demonstrating how increases in the incidence of asthma and possibly other diseases are associated with exposure to these byproducts.

The presence of organic contamination levels in recreational water and how it directly relates to the production of toxic disinfection byproducts is now generally recognized as a significant health hazard to swimmers and facility staff. The best way to reduce the production of disinfection byproducts is to reduce the organic load within a body of water. It is the organics within the pool that are the source of the disinfection byproducts. Using The Moss™ will reduce the organic contamination swimming pools and spas leading to improved water and air quality.

Reduction of Disinfection Byproducts in the Water of Sphagnum Moss Treated Pools



Pool was drained/refilled

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# An Update on Legionella

By: David R. Knighton MD, Co-Founder, President and Chief Executive Officer

Legionella pneumonia was in the news again last week due to cases traced to Disneyland® cooling towers in Southern California. Of the 12 reported cases as of this writing, one patient has died. After the New York City outbreak in the Bronx in 2015, strict testing and reporting standards were instituted statewide. All towers are tested quarterly with water samples sent to a state certified testing facility. Any result that records greater than 20 CFU/mL but less than 1000 CFU requires online disinfection and retest in 3-7 days. When less than 20 CFU/mL is reached, routine maintenance continues. Greater than 1000 CFU requires state notification, online decontamination and retest. If any retest continues to be greater than 1000 CFU/mL, the cooling tower must be drained, decontaminated, and retested until it is below 1000 CFU/ml.

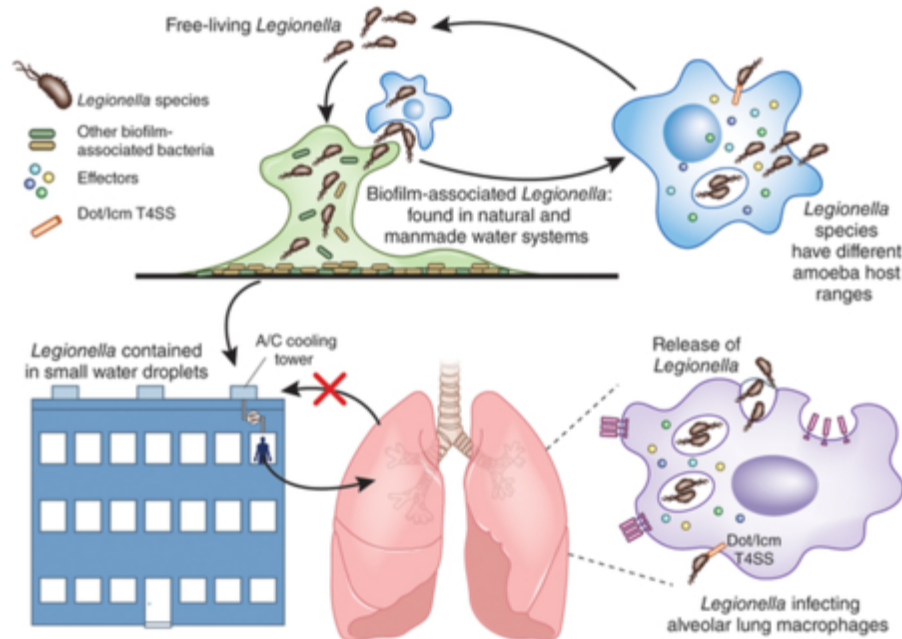
Mike Bromley, President of Water Wise of America lives and works in upstate New York and is our premier industrial ProMoss™ dealer. I called Mike and asked him to look up the records on the ProMoss™ treated towers he treats and the results of the Legionella testing.

Mike has 68 cooling towers being treated with ProMoss™ and either chlorine or hydrogen peroxide as the required biocide. To date he has had two towers with low levels of legionella. Both were new starts on ProMoss™. One had a problem with the biocide delivery and the other had the test taken from a non-flow area of the basin. Neither required state notification and both were negative after online decontamination.

So why does ProMoss™ provide these results? The answer is organic contamination.

ProMoss™ inhibits the formation and removes existing organic contamination from the surfaces of the water containing structure. Legionella are very unusual bacteria. They thrive inside organisms that usually kill them. In water containing structures like cooling towers, organic contamination accumulated on surfaces and amoeba feed on the organic contamination. Amoeba ingest legionella bacteria but can't kill them, so they grow inside the amoeba until they kill the amoeba. The Legionella then swim free and can be transferred by droplets of water to another host. If that host is a human, legionella are eaten by lung macrophages and do the same thing to the human macrophage that they did to the amoeba. The end result is destruction of lung tissue and often deadly pneumonia.

We think ProMoss™ reduces the food source for amoeba by inhibiting the formation and removal of organic contamination.



Vance Fiegel, Co-Founder & Chief Scientific Officer will be exhibiting and speaking at the Southwest Pool and Spa Show in Houston, TX, on Saturday, Jan. 20 at 10:15 am. Title is "How Does Your Filter Flow? - Maintaining Filter Effectiveness and Water Quality".