



Introduction

Background and History





SPHAGNUM MOSS?

The story behind our discovery is genuinely unique, and began with the frustration one of our founders was feeling from his inability to keep his spa clean. An esteemed vascular surgeon and cellular biologist, Dr. David Knighton is also a pilot, inventor, and committed outdoorsman, with a broad understanding of ecological processes.

Already intrigued by the storied use of moss in wound healing, he believed that it was having a similar effect on the lakes he viewed during his flights “up north” in Minnesota. The further north he went, the clearer the water became.

Working with his business partner, Vance Fiegel, they gathered some moss and began the series of experiments that led to the formation of Creative Water Solutions. After testing a multitude of moss types and species, they narrowed down the suitable material to two species of the Sphagnum moss genus. This species of moss is used in orchid germination, and harvested in a highly innovative and sustainable manner.

And, the use of Sphagnum moss has proved to have remarkable and pervasive effects on water, which have lead to applications going far beyond the pool industry, into various industrial water treatments, including cooling towers, boilers, and steam generators.



THE PROCESS

In our process, Sphagnum moss works much like a tea bag. The moss is placed inside a contact chamber, which allows it to interact and treat the pool/spa water. Once treated, the water helps reduce organic contamination, which is a primary catalyst for a host of common pool issues.

At the same time, Sphagnum moss is releasing a buffer into the water, which helps to naturally stabilize pH and alkalinity. It also binds metals (e.g. calcium, magnesium, iron), which helps diminish scaling and staining. Corrosion, disinfection by-products (DBP), and organic contamination are dramatically reduced.

For those pools with surge tanks, the moss (which is enclosed in a mesh bag) is placed in a contact chamber, and lowered into the tank. The circulation of the pool is all that is needed to treat the water. Moss is changed on a monthly cycle. The old is removed, and replaced with the new. The contact chamber is lifted out of the surge tank, and resubmerged after the change is made.

Our other method allows a contact chamber to be plumbed in. In this case, the contact chamber is installed in a “slipstream” application, so that water flow through the chamber can be controlled. The moss is still changed monthly, and effects to air and water remain the same.



Flights of Fortune: (Revisiting) The Discovery of Moss

On a flight home from a speaking engagement in Germany, a doctor had run out of things to do. The flight attendant offered a copy of Atlantic Monthly magazine, which featured an article discussing the medical applications of moss during World War I.

It seems that during the war, both British and German medics were consistently running out of traditional gauze, and began treating their soldiers with moss. As it happens, those wounds dressed in moss not only recovered at a higher and faster rate, but also endured fewer complications and less scarring.

This was 1998, and as he read through the article, David Knighton applied it to his own observations and experiences as a doctor and scientist. A world-renowned vascular surgeon, and expert in wound care, he presumed some level of anti- microbial activity within the moss, which also provided the logic for other historical uses.

For instance, did you know that Native Americans have long (and very effectively) used moss for diapers, and in care of their newborns? And, did you know that Nordic Vikings used it to keep their water fresh and preserve fish on long ocean voyages?

A couple of years later, David was dealing with a bit more than the boredom of a long flight. Having installed a swim spa in his home, he had become flummoxed by the odor emanating from his basement, and the murky lack of clarity in the water.

His wife would make “sniffing” sounds, and compared the smell to the reek of dirty diapers. The spa, which he wanted to love, was nothing more than a constant source of frustration.

He went through all of the normal “fixes”, to no avail. Chemical changes, newfangled products, expensive ventilation changes. Nothing worked. He employed his own advanced education and experience with chemistry, which led only to greater exasperation, and he was nearly ready to toss the darn thing out.

That old magazine article was about to intervene.

Now, it's reasonable to call David Knighton an interesting guy. Aside from his skill as a surgeon, he is also a pilot, author (The Wisdom of the Healing Wound), inventor, speaker, and avid fly-fisherman. In fact, he (along with friend and business partner Vance Fiegel) invented the system used to harvest the saphenous vein for use in heart surgery.

Leaving on an August fishing trip, he flew out of the Twin Cities. He noted that the lakes were thickly covered in algae, and it was nearly impossible to see below the water's surface. Still, as he ventured further “up north”, the lakes grew clearer and bluer, until he could easily see all the way to their bottom from the cockpit of his plane.

Knowing that Northern Minnesota was abundant in moss, he began to hypothesize about the powerful role it seemed to be playing in water quality, and wondered if its elements might help clean up his tub.

Vance was actually the first one to lay his hands on some Sphagnum moss. Working with the Natural Resources Research Institute, which is affiliated with the University of Minnesota at Duluth, he acquired some Northern Minnesota moss to study its effects on bacteria.

David dropped some into the source of his on-going frustration. A couple of days later, the water was clear, and the smell was gone.

It wasn't completely without issues. They had used the wrong species, and some unnecessary parts of the plant, so the water had a yellowish-green hue, but the turbidity and smell were gone! (Not to worry...today's moss does it perfectly.)

This was the first of many experiments (and long road) that led to the formation of Creative Water Solutions, and the many successes we have achieved to date. The solution to one man's frustration with a small tub, is now treating millions and millions of gallons of water in commercial facilities and homes all over the world.

And, it hasn't stopped there. Moss has shown a relationship with water that helps it adapt to a growing variety of man-made applications, and provides extraordinary potential for uses extending far beyond the swimming pool. Creative Water Solutions has readied a powerful solution to the high costs, waste, and performance issues associated with industrial systems, wastewater, and process water.

Seems "the moss" has true "moss appeal". Stay tuned.

The Reason BECAUSE IT REALLY WORKS

It's been nearly 14 years since David performed that first experiment in his own spa, and almost 11 since we officially opened our doors. The truth is that he and Vance developed a pretty keen appreciation for Sphagnum moss (and its potential) very quickly. Still, they worked carefully and deliberately to understand and prove their results, and turn them into a genuine and viable solution to some of the most critical and pervasive issues in water treatment.

It wasn't about a fear of being classified as "snake oil". They simply weren't willing to be associated with that element. If they couldn't make moss work in the way they knew it should, they'd shut the doors and go home.

Now it's 14 years later, and PoolMoss[®] Pro and SpaMoss[®] Pro simply work. In pools and spas around the world, both large and small, PoolMoss[®] Pro and SpaMoss[®] Pro are clarifying water and keeping it balanced, generating better air quality, reducing scale, corrosion, and chemical usage, along with a number of other benefits. It very certainly has become the right product...at the very right time.



CREATIVE WATER SOLUTIONS

Highlighted Commercial Installations

- ❖ **University of Maryland** College Park, MD
- ❖ **Auburn University** Auburn, AL
- ❖ **Macalester College** St. Paul, MN
- ❖ **Six Flags America** Washington, DC
- ❖ **Six Flags Great Adventure** Freehold, NJ
- ❖ **City of St. Paul** St. Paul, MN
- ❖ **City of Denver** Denver, CO
- ❖ **Salvation Army Kroc Center** Philadelphia, PA
- ❖ **Wet n' Wild** Orlando, FL

Creative Water Solutions

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