Cryptolyte® effectively mitigates DBPs at INDOOR Aquatic Facilities. This **Patented** technology attacks DBPs at the source, rapidly mineralizing the precursors (i.e. Urea) that form DBPs as well as accelerating the decomposition of existing DBPs.

Understanding & Addressing INDOOR Aquatic Illness

Between 2000 and 2014, the **Centers for Disease Control and Prevention** (CDC) reported 22 outbreaks and more than 1000 cases of **illness linked to pool chemistry** at public aquatic facilities. The culprits are likely the chemical compounds known as volatile disinfection byproducts (DBP), like **trichloramine**.

In 2017, a study published in the International *JournalofEnvironmentalHealth Research* found lifeguards who worked at indoor aquatic facilities more than 500 hours per year were much more likely to suffer from respiratory illnesses than lifeguards who worked fewer hours—clearly highlighting indoor pool environments can have adverse health effects on the respiratory system. Reference Pool and Spa Marketing Article - copyrighted

Researchers from a university conducted a study in 2019 at an INDOOR aquatic facility by monitoring DBP in both the air and water. The study included monitoring the before and after effects of a new generation of pool water treatment and the results were striking.

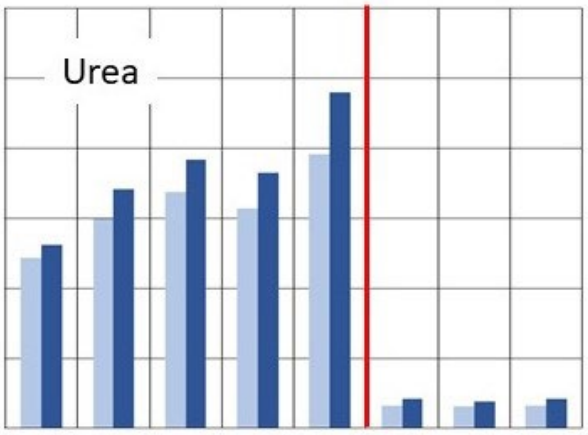


Fig 1

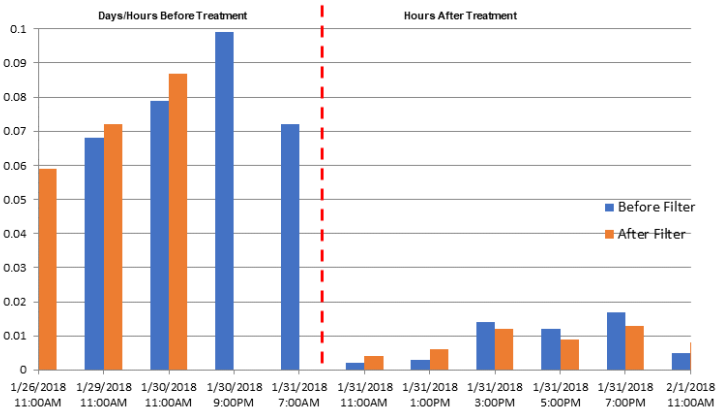


Fig 2

Urea is contributed thru perspiration and urine from bathers and is accountable for the vast majority (~80%) of organic-N (Nitrogen) responsible in the formation of Trichloramine.

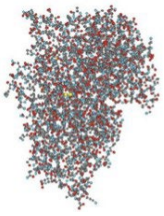
Fig. 1 Cryptolyte® rapidly oxidizes Urea as it is being introduced into the pool water.

Fig. 2 shows Trichloramine concentration Days & Hours leading up to starting treatment. Within hours of implementing the treatment, the Trichloramine concentration plummeted. A 10-fold reduction in trichloramine was achieved and sustained during comparable bather loading (time of day) throughout the remainder of the study.

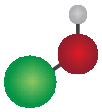
Cryptolyte® accelerates oxidation of the organic contaminants contributed by swimmers and existing DBPs thereby inhibiting accumulation. Oxidation Potential (ORP) remains elevated.

Formation of DBP

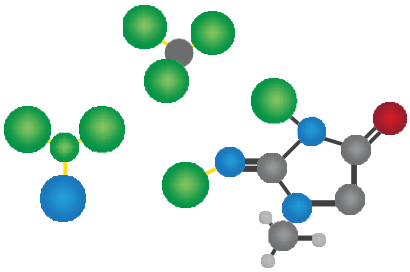
Chlorine is a very effective disinfectant for the treatment of recreational water. However, when chlorine reacts with organic based contaminants added to the pool water by swimmers (e.g. urea, enzymes in saliva etc.), undesirable reactions occur resulting in the formation of volatile chlorinated disinfection byproducts (DBP).



Saliva Enzyme



Chlorine



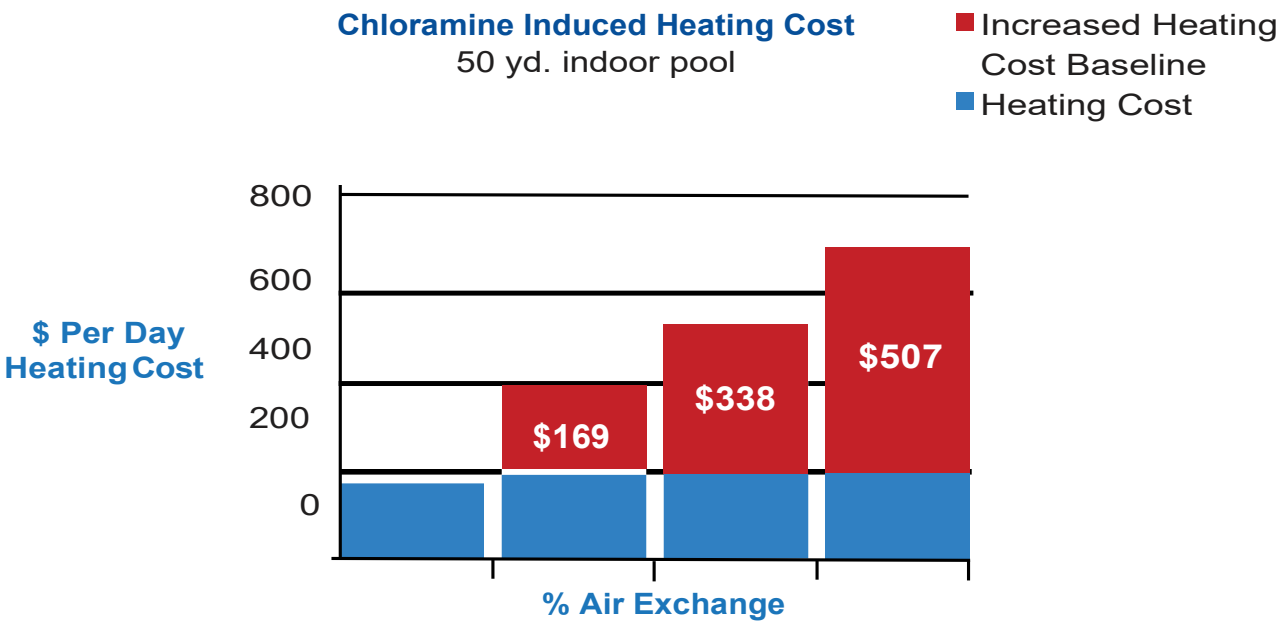
As the concentration of DBP increases, the air becomes fouled resulting in: respiratory discomfort; irritation of the sinus, nose and eyes; corrosion of equipment, and typically increased energy cost associated with excess outside air exchange.

Other Problems Resulting from DBP

Corroded Air Handling System

Corroded Dehumidifier

Trichloramine and other disinfection byproducts induce corrosion of air-handling and dehumidification equipment as well as increase energy cost resulting from excess air exchange used to dilute the air within the Aquatic facility.



Energy losses Resulting from Excess Air-Exchange

Cryptolyte® Technology

Cryptolyte® is an EPA Approved & patented technology designed specifically to mitigate Recreational Water Illness (RWI) including Disinfection Byproducts (DBPs) at INDOOR Aquatic Facilities.

Cryptolyte® produces powerful Free Radicals that rapidly destroy chlorine resistant microbiological organisms as well as contaminants as they are being introduced to the pool water. Unlike side-stream treatments (UV and Ozone) the Free Radicals are released throughout the ENTIRE pool water and circulating system, dramatically accelerating their removal.

With the destruction of the contaminants and DBPs, ORP (Oxidation Reduction Potential) is sustained with reduced concentrations of free chlorine.

Cryptolyte® Benefits Include:

- Virtually eliminates DBP
- Eliminates need for Breakpoint Chlorination
- Dramatically improves Water and Air Quality
- Reduces Chlorine use and other Chemical Cost
- Low cost to implement
- Easy to Implement and Maintain (Automated)
- Reduced Energy Cost (Reduced Outside Air Exchange)
- Reduced Maintenance (Equipment Replacement)

Long-Term Monitoring of Water and Air Quality at an Indoor Pool Facility during Modifications of Water Treatment

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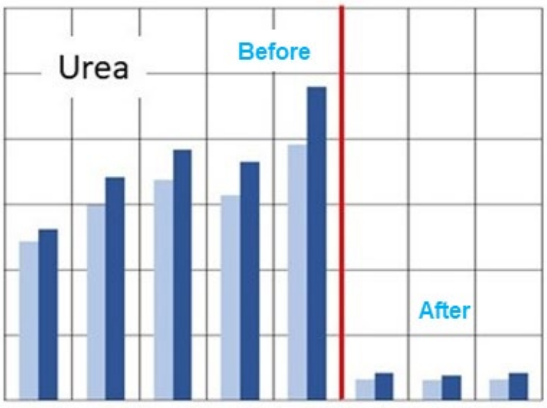

Fig 1

Trichloramine

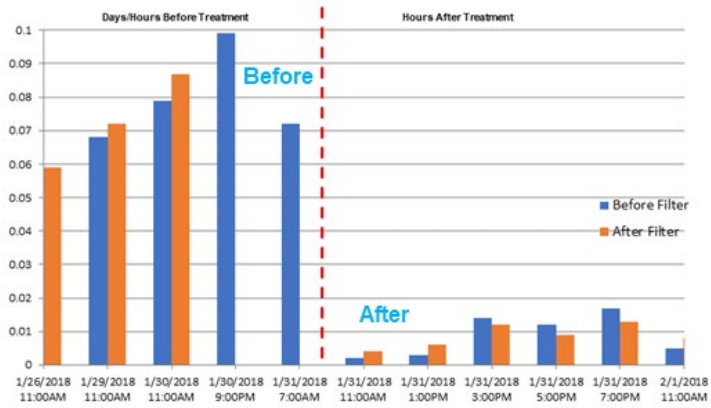

Fig 2

Urea is contributed thru perspiration and urine from bathers and is accountable for the vast majority of organic-N (Nitrogen) responsible in the formation of Trichloramine.

Fig.1 Cryptolyte® rapidly oxidizes Urea as it is being introduced into the pool-water preventing accumulation and subsequent formation of DBPs.

Fig.2 shows the Trichloramine concentration Days & Hours leading up to starting the treatment. Within hours of implementing the treatment, the Trichloramine concentration plummeted 10-fold. The reduction in trichloramine was achieved and sustained during comparable bather loading (time of day) throughout the remainder of the study.

Cryptolyte® accelerates oxidation of the organic demand contributed by swimmers and existing DBPs thereby inhibiting accumulation. Other forms of DBPs like Chloroform and Cyanogen chloride are suppressed and sustained at near undetectable levels (ppb).

Cryptolyte® provides pristine water clarity and air quality to INDOOR Aquatic facilities as a result of **Remediating** the water of contaminants and their undesirable DBPs.