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Breaking it Down

Using enzymes to help break down organic contaminants can give your customers the best-looking pool water they've ever had

Many maintenance service professionals relate directly to the organic load in a pool and its systems. The greater the amount of organic contaminants (body oils, suntan lotions, hair products, pollen, smog, insects and the like), the greater the problems faced.

Over time, organic contaminants collect on all hard surfaces: filter media, plumbing and water line. After a while, it takes more time, labor and chemicals to keep the pool clean and clear. Controlling the buildup of organic contaminants is key, then, to easier, less costly maintenance and greater customer satisfaction.

That's where enzymes come in.

Enzymes are nonliving, natural biological catalysts that can be found everywhere in nature. They are used in everyday life: the body's digestive process, food preparation and composting leaves, and grass, to name just a few.

Enzymes dramatically speed up the breakdown of organic material. When these large, complex protein molecules come into contact and bind with organic contaminants, they break them into smaller and smaller parts. This process continues until the compounds are simple enough to be oxidized by the sanitizer. Alternatively, they

get reduced to their elemental constituents, such as carbon dioxide and water.

Due to the large size of the enzyme molecule, each one can create thousands of reactions. A water molecule has a molecular weight of 18; an enzyme molecule will range between 30,000 and 50,000 molecular weight. So, if a tennis ball rolling around in the back of a service truck represented the size of a

water molecule, then the enzyme molecule would be the size of the service truck. That's why a small amount of enzyme can treat a large amount of water.

However, enzymes are "substrate specific," meaning any given enzyme molecule works on one, or at best a few, types of organic molecules. If an enzyme is meant to work on a certain type of oil, but the problem is dead algae,

there will be no reaction. The right enzyme has to be present to match up with the dead algae to react. Manufacturers provide guidelines as to the specific applications for their products.

Once you determine the proper enzyme to use, a once-a-week dose will provide visible results in a few weeks. During this process, not only is the enzyme working on what is coming into the pool

The Enzyme Approach

Enzymes are substrate-specific, meaning that they only work on a particular type of contaminant. If an enzyme doesn't match up with the molecule it's meant to break down (see area of detail), there will be no reaction. Check manufacturers' guidelines.

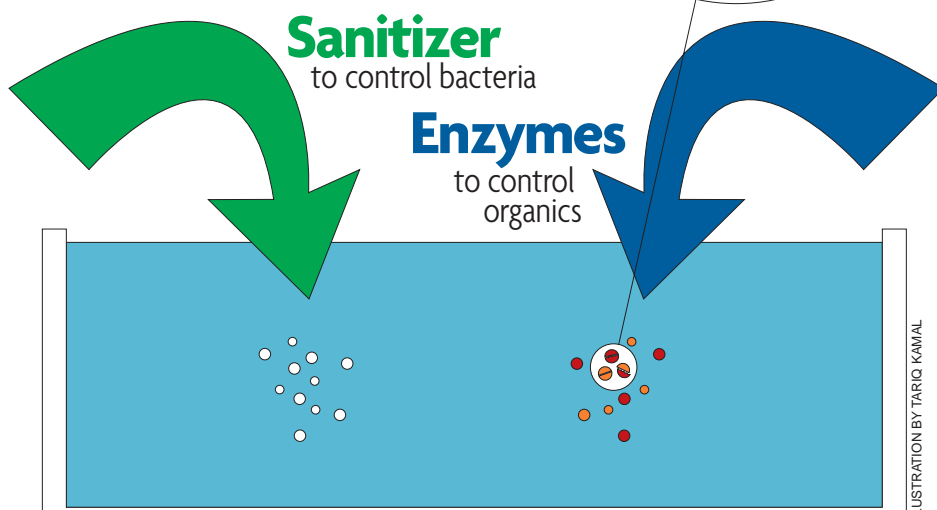


ILLUSTRATION BY TARIQ KAMAL

Hot tub enzymes

Just as enzymes can provide easier, less costly maintenance and greater customer satisfaction in pools, they can do the same thing in hot tubs.

In fact, enzymes are key to breaking down the root cause of the five most common problems faced in hot water maintenance:

1. Scum line
2. Loading of the filter
3. Smell
4. Cloudiness
5. Foaming

The root cause of all these problems is those organic contaminants: sweat, body oils, lotions, cosmetics and the like, which bathers bring in and leave behind.

Enzymes help break down and limit the buildup of these contaminants and control all five of these common challenges.

daily, but also on the pre-existing organic load that has accumulated over time on the filter media, coating the inside of the plumbing and all hard surfaces.

The results can be dramatic. The scum at the water line will be reduced, if not eliminated. This will cut down on labor and improve the speed of service.

In addition, the filter cycles will extend by reducing the biggest challenge for all types of filters: oils.

Oils coat cartridge elements and do not come off easily. Therefore, they require more frequent and time-consuming cleaning. The same is true of DE grids, shortening the time between backwashing, costing time, effort and filter performance. The top several inches of sand in a sand filter can become impacted with oils that will not backwash out, greatly affecting the flow rate and the amount of dirt the filter will remove.

Controlling the oil buildup in these filters will allow each to live up to its designed ability. Again, it improves the speed of service and reduces labor.

By breaking down and removing the small, suspended particles that are too tiny for the filter to catch, the pool water will maintain that bright sparkle sought by every customer.

Although enzymes are not a “silver bullet” cure-all, what they do, they do very well. You — and your customers — will see and feel the difference. ■