

# SHOOT DOWN POOL SHUTDOWNS FOR GOOD

by Kelly O'Toole

**W**ant a way to avoid chronic chlorination problems, or worse yet, having your pool shut down by regulators due to poor sanitation? Install a properly sized chlorinator certified to NSF/ANSI Standard 50, follow the manufacturer's directions and always use the specified chemicals.

Much more than just a string of letters and numbers, NSF/ANSI Standard 50 is the globally recognized mark of a high-quality pool chlorinator that has passed rigorous independent testing and is certified by a third party for its chlorine delivery, reliability, durability and safety.

"A chlorinator certified to Standard 50 means it has met the American national standard for pool and spa circulation systems," said Dave Purkiss, general manager of water distribution systems for NSF International, an independent prod-



**"Chlorinators are designed to deliver a specific chemical product at a specific rate."**

— Dave Purkiss, NSF International

uct certifier in the commercial and residential water markets. "This certification is extremely important for pool operators, because it confirms that the product will produce a consistent level of chlorine. That's why 28 states and scores of local governments currently require commercial pools to use a chlorinator certified to this standard."

Adds Paul Sisson, environmental engineer with the Michigan Department of Environmental Quality, "I don't really have any way of evaluating chlorination systems other than by using the NSF standard. If the feeder isn't NSF-listed, the first thing I ask the pool operator is to prove that the product meets Standard 50. Not meeting this or any other acceptable standard could lead to shutting down the pool."

## Confidence through Testing

To certify a flow-through chlorinator to Standard 50, NSF first inspects the manufacturing facility to verify the product's design, construction, materials, and marking. A sample chlorinator is then sent to the NSF laboratory, where it undergoes testing in five primary areas:

- Delivery rate/uniformity of output—The delivery rate needs to be within 20% of the claimed rate at each of four settings. At each setting, the variation can be no more than 10% over the test time.
- Chemical resistance—NSF subjects the chlorinator to 100 days of chemical exposure and then inspects all components for any signs of deterioration.
- Toxicology—All chlorinator components, especially those that come in contact with the pool water, are analyzed to determine that the materials used are not prone to leaching a toxic ingredient.
- Pressure test—If the chlorinator is pressure rated, it must hold up to at least twice the claimed pressure.
- Electrical—All electrical components must comply with the national electric code.

In addition, NSF requires that warning statements appear on the product's data plate and in the

operating instructions. These statements indicate that the use of chemicals other than those specified by the manufacturer may be hazardous.

The certification process averages six months, and products are certified on a plant-by-plant basis. While a chlorinator made at plant A may be certified, one made at plant B of the same company may not. Only chlorinators carrying the NSF mark are certified, but only when used with the specified chemical.

"Chlorinators are designed to deliver a specific chemical product at a specific rate," said Purkiss. "When we test a chlorinator to Standard 50, we are testing it with that chemical only. If another chemical is used, the certification is invalid, and the pool operator could then be out of compliance with state and local regulations."

*NSF has certified PPG's Accu-Tab chlorinators, which must be used only with Accu-Tab blue tablets to remain in certification. (Photo courtesy of NSF International)*



feeders, which can result in violent reactions. To guard against this, PPG puts a special blue dye in its tablets to differentiate them from trichlor. An additional concern is the use of other "knock-off" three-inch cal hypo tablets because the tablets have not been tested with an NSF-certified chlorination system to the requirements of NSF 50. Using such tablets can lead to insufficient, excessive or simply inconsistent chlorine deliveries into water. These tablets can also be mistaken easily for trichlor since they are also white in color.

Arch faces similar concerns about tablet substitution, particularly trichlor, and has taken steps to differentiate its tablets through smaller sizes, unique shapes and coloration. One-inch tablets should also not be used in a Pulsar feeder because they are not NSF certified for the system and could be confused with similar-sized trichlor tablets.

*When used with Pulsar briquettes, Arch's Pulsar systems are also certified to NSF/ANSI Standard 50. (Photo courtesy of Arch Chemicals)*



## Don't Even Think About Substitutions

Potential safety issues can be avoided by using the chemical specified by the manufacturer.

Here's a good example of what can go wrong when non-specified chemicals are used with two differently designed calcium hypochlorite systems. With the PPG Accu-Tab® system, incoming water contacts the bottom of a sieve plate holding Accu-Tab blue calcium hypochlorite tablets, which have a patented controlled erosion agent. The Arch Pulsar® system uses pressurized water that is pushed through nozzles to atomize the spray, which then passes through a grid and contacts the Pulsar Plus briquettes.

"In the Accu-Tab chlorinator, our smaller briquettes would dissolve far too quickly and result in too much chlorine output," said David Blanchette, senior technology representative for Arch Chemicals. "Conversely, you wouldn't get enough chlorine output if you put the Accu-Tab tablets into a Pulsar system. The three-inch tablets can't nestle like the smaller briquettes, creating gaps that cause the spray to pick up less chlorine. That's why only Arch briquettes should be used in an Arch system, and only Accu-Tab tablets should be used in an Accu-Tab system."

Inconsistent or insufficient chlorine levels can result when using the wrong chemical in a chlorinator, with the potential consequence of a pool shutdown. The other safety issue involves mixing chemicals.

"Substituting another kind of chemical could result in a range of reactions between incompatible chlorinating agents," said Dr. Stanley Pickens, senior research associate for PPG Industries. "These reactions include release of hazardous gases, fire or even an explosion. Generally, these situations can be attributed to not following label directions on our chlorinators and/or tablet containers, which is a violation of NSF certification."

As the only manufacturer of an NSF-certified three-inch calcium hypochlorite chlorinating system, PPG's big concern is the substitution of trichloro-s-triazinetrione, or trichlor, tablets in its Accu-Tab

"A person could potentially be seriously injured when trichlor is substituted," said Pickens. "This makes complying with NSF standards and health codes truly a matter of health and safety."

So what's the bottom line? Look for NSF/ANSI Standard 50 certification, follow the manufacturer's directions and always use the specified chemicals.

For more information on NSF/ANSI Standard 50, visit the NSF International website at [www.nsf.org](http://www.nsf.org). For more information on the Arch Pulsar system, visit [www.archchemicals.com](http://www.archchemicals.com). For more information on the PPG Accu-Tab system, visit [www.ppgaccu-tab.com](http://www.ppgaccu-tab.com).

*Kelly O'Toole is a freelance writer located in Wexford, Pennsylvania.*

## The ABCs of NSF/ANSI Standard 50

**NSF International, formerly known as the National Sanitation Foundation, is a non-profit, non-governmental organization that produces standards and serves as an independent third-party product certifier in the commercial and residential water markets.**

**ANSI stands for the American National Standards Institute, which approves one U.S. standard for a specific product.**

**NSF/ANSI Standard 50, developed by NSF and approved by ANSI, is a voluntary standard for pool circulation systems that was written by a consensus of manufacturers, end users and regulatory officials.**