

Pollution Prevention (P2) Opportunities with Pools



Pools are an essential item in the Arizona heat. With our climate, pools can lose their equivalent volume of water (around 20,000 gallons) to evaporation in just one year.¹ The dryness can also bring dust and debris into the pool, which can damage your filtration and pump system. P2 techniques can help to reduce your energy and water usage while mitigating the accumulation of dust and debris. Proper pool chemical awareness can also help to reduce potential hazardous situations.

Pumps

Pumps are a crucial aspect of any pool system facilitating the circulation of water to keep it clean. Often times, pool pumps are run for too long and are oversized. A properly sized ENERGY STAR certified pool pump can use 70 percent less energy than standard pool pumps. This translates to \$290, which means the pump will pay for itself in less than two years. ENERGY STAR certified pumps make use of variable speeds, so they only use the energy needed to complete the task. It is recommended to run the pump for about six hours a day through several short cycles. ENERGY STAR certified pumps also run quieter while increasing the longevity of your filtration system.² You can find out how much you could be saving by using ENERGY STAR's pool pump energy savings calculator found [here](#).³

Solar Pool Heating

Solar pool heaters are a competitive and cost-effective way to heat your pool. The main component of a solar pool heater is the solar collector. Solar collectors make use of the sun's energy to heat water or preheat for a backup heater on cloudy days. Systems can be equipped with sensors and automatic valves to correctly divert water to the solar heater whenever it is efficient. The size of the heater is usually the same as the square footage of your pool, but factors can affect this like usage time.⁴ This system lasts about 20 years and can save \$2,900 - \$5,200 over the lifetime of the unit, depending on the backup heater (electric heaters being better than gas).⁵

More Ways to Reduce Energy and Water Usage

Pool Covers

There are many types of pool covers with automation abilities. The type of pool cover you need is dependent on your hotel's pool hours. If your pool is used frequently during the day and closed at night,

it is recommended to get an insulated pool cover. The cover will help to hold in the heat absorbed throughout the day. If you cover the pool during the day, use a bubble cover for daytime hours and an insulated cover at night. The bubble cover still allows heating from the sun, only inhibiting it by 5-15 percent.⁶ Pool covers work well with solar heating to reduce heating costs.

Robotic Pool Cleaners

Robotic pool cleaners offer a better alternative to suction cleaners. The robotic cleaner is not reliant on a pump being on since it contains its own pump operated through a converted low voltage connection. Energy usage (200 kWh per year) is much lower than the alternative (1600-2000 kWh per year).⁷

Wind Breaks

An often-missed opportunity for reducing pool water evaporation is adding windbreaks. A mere seven miles per hour wind can increase evaporation loss by 300 percent.⁸ Windbreaks can be a wall, plant, fence, etc. anything that is able to effectively block the wind. As an added bonus they help to block debris from entering your pool during higher winds.

Leak Detection

It is estimated that 30 percent of all pools have leaks.¹ Leak detection can be accomplished in many ways. The easiest is to use a water meter for your pool. Seeing a spike from normal to high general usage indicates a leak. Another way is to place a bucket on a pool step and fill to the same level as the pool. Monitor the level of the bucket compared to the pool. If they differ after one to two days, a leak has been identified. Further testing can be done by backwashing during this process and then comparing it to the previous result. If more water is lost, the problem is most likely in the pool piping.

Pool Chemicals

Pool chemicals can become harmful if treated improperly. First and foremost, read the labels of every product and know their hazards and proper storage techniques. Even seemingly identical products can react when mixed, so take your time to understand the exact products you are using. Generally, different pool chemicals should be kept separate. Liquid chemicals should be on the bottom shelves and elevated from the ground because leaking liquid pool chemicals could react with solids below and form chlorine gas, which is highly toxic and corrosive. Pool products can even self-react over time producing chlorine gas. The storage room should be well ventilated for this reason. Be sure to also check for structural damage in the storage room itself to prevent uncontrolled reactions from outside water getting in. Improper or accidental mixing of pool chemicals can lead to fires. Only use equipment with respect to a single chemical before cleaning, and dispose of chemicals in separate areas to prevent accidental mixing. Always remember that separation is the key to prevent reactions. If you follow the above steps and refer to EPA's *Safe Storage and Handling of Swimming Pool Chemicals* you will be prepared for the hazards involved.⁹

Inventory Management Key Points

- Implement a first-in/first-out strategy by using containers until they are empty before opening new ones
- Make sure to have clear indications of open containers to avoid one being opened prematurely
- Mark the date a container is opened to correlate the effectiveness of the chemical
- To avoid overstocking, only order new chemicals when necessary

Backwash Tips

When properly performed, backwash can serve as a perfect opportunity to reuse pool water. Three rules to remember:

1. Backwash 72 hours after chemicals are applied
2. Only backwash when necessary
3. Follow manufacturer's specifications

Reclaimed pool water contains more salt than normal water, so try to use this water on salt tolerant plants like oleanders, bougainvillea, rosemary, etc. Only backwash until water is clear, anything more is unnecessary.¹

Resources

¹ [City of Chandler. *Is Your Pool Leaking?*](#)

² [ENERGY STAR. *Pool Pump Fact Sheet.*](#)

³ [ENERGY STAR. *Savings Calculator for ENERGY STAR Certified Inground Pool Pumps.*](#)

⁴ [U.S. Department of Energy. *Solar Swimming Pool Heaters.*](#)

⁵ [ENERGY STAR. *Solar Water Heaters.*](#)

⁶ [U.S. Department of Energy. *Swimming Pool Covers.*](#)

⁷ [ENERGY STAR. *Pool Pumps.*](#)

⁸ [Arizona Department of Water Resources. *Pools and Spas.*](#)

⁹ [U.S. Environmental Protection Agency. *Safe Storage and Handling of Swimming Pool Chemicals.*](#)