Swimming Pool Maintenance and Operating Instructions

In order to prepare a swimming pool in a healthy and proper manner before each season, various cleaning and disinfection chemicals are required. For this purpose, receiving proper training on the use of cleaning and disinfection chemicals or consulting a professional company is the most appropriate approach.

Both for health and aesthetic reasons, pool maintenance and periodic chemical control are among the most critical factors that must be carefully observed. During the season, pool water must be checked regularly every day to maintain the desired values. Pool chemicals are the most important materials that make this possible. There are many different pool chemicals, and each has a specific purpose and area of use.

It should never be forgotten that even if a swimming pool system is constructed in accordance with standards and equipped with high-quality equipment, unhealthy pool water conditions will occur unless the pool is operated correctly.

The pool chemicals used during the swimming season can generally be classified as chlorine, pH reducer, algaecide, flocculant, clarifier, foot disinfectant, surface cleaner, ion remover, and winter maintenance chemicals.

Let us now examine, step by step, the procedures to be carried out from pre-season preparation through the swimming season.

Inspection of Pool Equipment

Before putting the pool into operation at the beginning of the season, pool equipment must first be inspected and maintained.

1- Sand Filter:

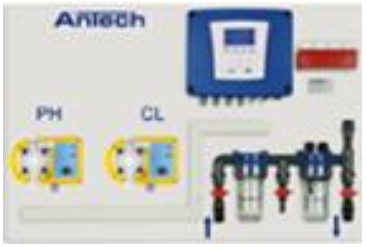
The filter media inside the sand filter must be checked. Is the sand suitable for the new season? Are the granules of the proper size and cleanliness? Do the connection fittings on the filter leak water? Is the pressure gauge functioning correctly? All these points must be checked, and components should be replaced if necessary.

2- Filtration Pumps:

The pre-filter basket of the filtration pump must be cleaned. Connection equipment should be inspected and replaced if necessary. During initial operation, the electrical installation must be checked, and it must be verified that the pump is rotating in the correct direction.

3- Automatic Disinfection or Salt Chlorination System:

The automatic control regulator and dosing pumps must be checked to ensure proper operation. Connection parts should be inspected for leaks. Dosing pump hoses, discharge and suction check valves must be inspected and replaced if necessary.



4- Electrical System:

The electrical panel and system must be inspected, and any non-functioning components must be replaced. All cables should be checked, and deformed or deteriorated cables must be replaced. Cables must be flame-retardant (halogen-free). Shaft materials and cable connections should be inspected, and loose connections that may cause short circuits or malfunctions must be removed and securely reinstalled using terminal blocks..

5- Lighting Fixtures:

Lighting fixtures must be checked, and non-functioning lamps must be replaced. After each lamp replacement, all seals in the housing must be replaced. As a secondary protection, cable and gasket areas must be sealed using polyurethane-based silicone resistant to pool chemicals.

6- Pool Transformer:

Transformers must be inspected. To prevent damage from moisture and corrosion, they should be housed in airtight, insulated enclosures. Non-functioning transformers must be replaced. If possible, transformers equipped with LED indicators showing operational status should be preferred.

7- PVC Piping System :

PVC piping systems and fittings must be inspected. Any connections with leakage issues must be repaired. Deformed pipes and fittings must be replaced before filling the pool with water.

Pool Cleaning:

To prepare the swimming pool for the season, the water remaining from winter must be drained. Afterwards, the pool should be washed with clean water. Pool surfaces should be scrubbed using a brush with diluted acid solution applied to the walls.

During this process, occupational safety rules must be strictly followed. Under no circumstances should work be carried out without gloves, boots, and protective goggles. After acid cleaning, surfaces must be rinsed with clean water as soon as possible to prevent damage to the grout. Any remaining acidic and dirty water inside the pool must be completely drained.

Next, an algaecide should be applied to the pool walls using a brush. Depending on weather conditions, after allowing sufficient drying time (recommended: 1 day), the pool should be filled with clean water.

The pool water must be of potable drinking water quality. Using well water or tanker water with unknown properties may cause problems due to high levels of iron, manganese, lime, etc. Since refilling the pool may become necessary, it is strongly recommended to fill the pool using municipal water supply.

Pool Chemical Values:

The use of chemicals depends on the volume of the swimming pool. To maintain proper chemical balance, five main pool chemicals are required. In special cases such as environmental factors or specific water characteristics, additional chemicals may occasionally be needed.

Chemicals Used in Swimming Pools,

- pH Reducer
- Chlorine
- Flocculant (Coagulation)
- Algaecide
- Clarifier (Polisher)

Additionally, even pools equipped with automatic disinfection systems should have a test kit capable of measuring pH and chlorine levels for monitoring purposes.

Required Swimming Pool Water Values

- pH: 7.2 – 7.6 (Ideal: 7.4)
- Redox: 650 – 750 mV (depending on pool usage)
- Free Chlorine: 1.0 – 2.0 ppm (max. 3 ppm)
- Combined Chlorine: max. 0.7 ppm
- Water hardness (as $CaCO_3$): 100 – 500 ppm
- Daily fresh water addition: 30 liters per person
- Günlük taze su ilavesi kişi başına 30 lt.olarak eklenmelidir.

How to Use Pool Chemicals:

When initially putting the pool into operation, the pH balance must be adjusted first. Once the pH reaches the ideal value (7.4), chlorine levels should be adjusted. In pools monitored with test kits, the ideal chlorine value is approximately 1.0 ppm.

When the pool is first put into operation, pH control should be performed using a test kit.

Pool water must be tested daily using test kits to ensure chlorine and pH levels remain within acceptable ranges, or to add the required amount of chemicals to reach ideal values.

The chemical dosages provided below are examples for a 100 m^3 swimming pool. Pool chemical quantities must be adjusted according to the pool volume.

Chemical Usage Rates for a 100 m^3 Swimming Pool

The values provided are average values. Pool architecture, number of users, and environmental factors may increase chemical consumption.

First, the pool's pH level must be checked using a test kit. The ideal pH value is 7.4. Unless there are special water conditions, the pH value is likely to be high and must be adjusted before operation.

Important Warning

In liner-lined and inflatable pools, using granular (powder) chlorine and granular pH reducer may cause bleaching and color fading on the liner surface.

To extend the lifespan of liner materials, chlorine tablets, pool chlorine, or liquid chlorine should be used in the surface skimmer basket as disinfectants. Liquid pH reducer is also recommended.

In pools with automatic disinfection systems, liquid chlorine must be used since chemical dosing occurs automatically, and manual application is only performed during shock treatment.

All pool chemicals must be approved by the Ministry of Health. Availability of MSDS (Material Safety Data Sheet) information indicates product reliability.

pH Reducer

To reduce the pH of a 100 m³ pool by 0.2 units, 1–1.5 kg of pH reducer should be dissolved in a bucket of water and evenly distributed over the pool surface. After running the system for 3–4 hours, the pH should be tested again. If still high, the process should be repeated until ideal values are reached. Once achieved, chlorine adjustment can begin.

Chlorine

During initial filling, 1.0 kg of chlorine should be dissolved in water and applied to a 100 m³ pool. Subsequently, 200 grams per day should be applied in the same manner.

If the pool has an automatic disinfection system, liquid chlorine should be added to the chemical containers of the system instead of daily manual dosing. The system will automatically regulate chlorine levels.

After pH and chlorine levels are adjusted, other chemicals can be added.

Flocculant

1 liter per week for a 100 m³ pool, applied to the balance tank or directly into the pool.

Algaecide

1.5 liters during initial filling, then 0.6 liters weekly per 100 m³.

Clarifier

1.0 liter during initial filling, then 0.6 liters weekly per 100 m³.

During pool operation, testing with a test kit every other day is recommended. Proper operation and healthy pool water depend on maintaining ideal pH and chlorine levels.

Liquid Chlorine Usage

Liquid chlorine is supplied ready for use. In facilities with automatic disinfection systems, it should be poured into chemical containers in the machine room. After adding 25 liters of liquid chlorine, the remaining volume should be filled with water. Liquid chlorine prevents the growth and reproduction of bacteria, fungi, and similar organisms. Active chlorine content is approximately 12–14%. The exact amount added to the container is not critical, as the automatic system will dose as required and stop once ideal values are reached.

Liquid pH Reducer Usage

Liquid pH reducer is supplied ready for use and should be added to chemical containers in automatic disinfection systems. It is a diluted inorganic acid compound used to lower pH levels, allowing chlorine to function more effectively. After adding 25 liters of liquid pH reducer, the remaining volume should be filled with water. The system will automatically dose the required amount until ideal pH values are reached.

Note: For optimal performance, pool water pH should be maintained between 7.0 and 7.2. In pools using 90% granular chlorine, cyanuric acid (CYA) levels must be measured.

Test Kit Usage

Before use, test kit chambers should be thoroughly cleaned. A water sample should be taken from approximately 50 cm below the water surface. Test kits may be tablet-based or liquid-based. For tablets, one tablet is added to the pH chamber; for liquid kits, five drops are added. The lid is closed and mixed. The resulting color is compared with the reference chart to estimate the pool water pH level.

Barbaros Mah.Barbaros Cad.No:144/2
34758 Ataşehir - İstanbul / Türkiye
info@artemispool.com
www.artemispool.com
+90 505 732 57 56