

Winterizing a Pool - Inground Pools In Severe Climates

Brought to you by the APSS Recreational Water Quality Committee

I. INTRODUCTION

In many areas of the Europe the advent of fall brings an end to the swimming season as temperatures drop. The swimming pool industry for years has faced the challenge of dealing with freezing temperatures that can damage equipment, interior finishes, plumbing, tile, and structures. The focus of this bulletin is to look at the key elements that go into closing down an in-ground pool such that you minimize and prevent both physical and chemical damage to components of the pool.

All equipment should be serviced in accordance with the manufacturer's instructions. This bulletin contains general guidelines.

II. SUMMARY OF TREATMENTS AND PROCEDURES

Water Treatment

As a starting point, most winterizing processes recommend balancing the pool water to APSP standards. (See table below.) Consideration should be given to the fact that as the water temperature decreases the Langelier Saturation Index (LSI) will decrease (water will become more corrosive). This balancing process should take place 3-7 days prior to closing the pool. These levels should be adjusted and then rechecked using proper testing equipment.

Parameter	Min	Max	Ideal Range
pH	7.2	7.8	7.4-7.6
Total Alkalinity, ppm	60	180	80-120
Calcium hardness, ppm	150	1000	200-400
LSI	-0.3	+0.5	0.0 to +0.5

compressor, etc.) since pool equipment and lines cannot take excessive pressure and overpressure could present a safety hazard. This process should only be performed by an appropriately trained professional familiar with the potential hazards associated with pressurized air.

Make sure the electrical power to any heaters or heat pumps is disconnected and the circuit breakers are in the "off" position. Turn off the pilot flame, main gas valve and gas supply to the gas heater. Drain any water from the heat exchanger in accordance with the manufacturer's directions.

Make sure the circuit breakers are in the "off" position. In severe snow areas, the motors should be removed from the pump housing and stored indoors in a dry location. If a motor is left outdoors, make sure it has a weatherproof protective cover.

If the pool has an electrolytic chlorine generator, make sure there is no standing water in the cell. Remove the cell and store indoors.

If the pool utilizes Automated Controllers and Chemical Feed Equipment, be sure the electrical power to the controller is disconnected. Remove any sensors from the flow cells then, clean and store them in accordance with the manufacturer's instructions. Empty the flow cells then, clean and allow them to dry before storage.

If peristaltic pumps are used, remove any feed and injection tubes then clean and allow to dry before storage. Store any chemicals in accordance with state and local codes.

Automatic controllers that are installed outdoors should be removed and store indoors or protected from the extreme effects of winter.

Many pump, filter, and heater equipment manufacturers have specific instructions for safeguarding their equipment. Always check with the respective manufacturer if you have any questions.

Plumbing

The main damage to plumbing lines occurs from the freezing of water in these lines. By using an air compressor or the discharge side of a shop vacuum, you should purge the water by blowing air through the lines until bubbles appear inside the pool. This includes all return lines, suction lines (skimmer and main drain) and lines to water features, solar heating, pool cleaners, and slides. Again, caution is advised on the use of pressurized air.

On return lines, you will want to remove the wall fittings and insert tapered expandable plugs once the lines are clear of water. Tighten in place. In some locations, severe freezing water may dictate the use of straight pressure plugs.

atmosphere exposure. Higher water levels also mean less stress on covers. However, water levels should not be allowed to rise above the tile line of the pool to prevent damage to those surfaces during the winter.

Covers

Prior to installing winter covers, ladders, diving boards, and handrails should be removed, cleaned and then stored in a dry place. In Chapter 10-3 of the APSP's Service Tech Manual, 4th Edition, the four main types of winterizing covers are discussed:

1. Solid Lightweight Fabric Cover: Constructed of a solid film or sheet of synthetic fabric, held down by water tubes, sandbags, or ropes and anchors.
2. Spring-loaded ASTM Mesh Safety Cover: Made of mesh fabric, usually anchored to the pool deck.
3. Spring-loaded ASTM Solid Safety Cover: Made from reinforced vinyl fabric, usually anchored to the pool deck.
4. Automatic and Manual Safety Covers with Tracks: Made of solid fabric; available in standard and custom sizes.

All covers, regardless of type, have advantages and disadvantages. The type of cover and the level of the water in the pool must be closely examined over the winter season to prevent problems.

To avoid a safety hazard, solid covers should have automatic cover pumps which remove water from rain or melted snow (see Precautions below).

On all covers, leaves and other organic debris must be periodically removed to prevent plugging the cover pump or damaging the cover.

Tracked solid covers must be monitored for accumulation of water, snow, and ice. Excess weight from these items can damage the track system, possibly damaging the concrete, coping or pool wall.

With all winterizing covers, the long term durability and longevity of the cover is dependent on proper water balance, proper water levels under the cover, regular maintenance and cleaning.

III. GENERAL DESCRIPTION

The techniques and methods in closing down an in-ground pool for the winter vary from region to region. Local climate conditions and customs often dictate the type, amount and timing of maintenance and services that are performed on an individual pool. Even with regional differences which are often dictated by the severity of the winter season, most winterizing procedures share several common features that can be used to protect pools regardless of the type of interior finish and structure. Winterizing or closing should occur before the first hard freeze.

IV. CONCLUSION

The degree of complexity associated with winterizing an in-ground pool is dependent on many factors. From an environmental or climatic perspective, the expected temperature range, the amount of precipitation and the depth of the frost line will all dictate what actions and processes must be done to avoid damaging the tile, interior surfaces, plumbing, equipment, and structures. One should consult with the various chemical manufacturers, pool manufacturer or builder, equipment manufacturers, and cover manufacturers for the correct procedures and processes to use in a geographic region.