

## DAILY WATER CHEMISTRY AND MAINTENANCE

Balanced water chemistry is as critical during the off-season months as it is in season. Water may become aggressive to the finish because of rain, snow, fill water and the regular use of acid to control pH. Adjust your pH and Carbonate Alkalinity frequently; monitor calcium hardness and cyanuric acid monthly.

### DAILY WATER CHEMISTRY AFTER 28 DAYS

Maintain the water chemistry using the **Langelier Saturation Index (LSI)** maintained between **0.0 and + 0.3**.

- |   |   |   |  |
|---|---|---|--|
| • Free Chlorine = 1 to 3 ppm <sup>1</sup>             | • pH = 7.2 to 7.6                                   | • Calcium hardness = 200 to 400 ppm <sup>1</sup>      | • Salt Level = 2500 to 3500 ppm <sup>1</sup> |
| • Total Chlorine = 1 to 3 ppm <sup>1</sup>            | • Carbonate Alkalinity = 80 to 120 ppm <sup>1</sup> | • Cyanuric acid = 30 to 50 ppm <sup>1</sup>           | (Salt chlorination ONLY)                     |
| • Sequestering Agent as per Manufacturer's directions |   | • TDS = 300 to 1800 ppm <sup>1</sup> (Non-salt pools) |  |

The **Langelier Saturation Index (LSI)** must be maintained between **0.0 and +0.3** for day-to-day maintenance after the initial start up procedure has been completed. This will help to reduce the likelihood of problems with the pool surface. Disregarding these LSI parameters promotes leaching, etching and discoloration on the negative (-) side and scaling and discoloration on the positive (+) side.

**LANGELIER SATURATION INDEX (LSI) -**

$$\text{pH} + \frac{\text{Total Alkalinity Factor} + \text{Calcium Hardness Factor} + \text{Temperature Factor} - 12.1}{\text{TDS } 1 - 1000 \text{ ppm} = -12.1, \text{ TDS } 1000 - 2000 \text{ ppm} = -12.2, \text{ TDS } 2000+ \text{ ppm} = -12.3}$$

Deterioration, discoloration and scaling as a result of the premature or improper use of chemicals and use of chemical feeders are the responsibility of the equipment installer and operator. Feeders other than *Oxidation Reduction Potential (ORP)* types and pH controllers should not be placed in operation for a minimum of 28 days after the start up.

**Failure to follow the manufacturer and/or applicator instructions and to control the LSI may cause deleterious effects, which are not the result of improper workmanship or a manufacturer's defect.**

### LSI CALCULATOR

TA ppm (mg/l)	CH ppm (mg/l)	Temp F (C)
FACTOR	FACTOR	FACTOR
5=0.7	75=1.5	32 (0°C)=0.0
25=1.4	100=1.6	37 (3°C)=0.1
50=1.7	150=1.8	46 (8°C)=0.2
75=1.9	200=1.9	53 (12°C)=0.3
100=2.0	<b>300=2.1</b>	60 (16°C)=0.4
<b>125=2.1</b>	400=2.2	68 (19°C)=0.5
150=2.2	800=2.5	76 (24°C)=0.6
200=2.3	1000=2.6	84 (29°C)=0.7
300=2.5		<b>94 (34 C)=0.8</b>
400=2.6		105 (41°C)=0.9

**EXAMPLE:**  
**POOL WATER CHEMISTRY**  
 pH 7.8  
 TA 125<sup>1</sup>  
 CA 300<sup>1</sup>  
 TF 90° F (32° C)

A calculated LSI of 0.0 is considered balanced.  
 A calculated (-) negative LSI has corrosive tendencies.  
 A calculated (+) positive LSI has scaling tendencies.

CALCULATED LSI	
pH	7.8
TA factor	2.1
CA factor	2.1
Temp factor	.8
Total	+12.8
Subtract constant	<b>-12.1</b>
LSI =	<b>+0.7 SCALING</b>
<b>Target calculated 0.0 to +0.3</b>	

Use the closest factor to the chemistry reading.

**Caution: Research has shown that cyanuric acid levels of 100 ppm (mg/l) and above may cause permanent deterioration to the pool surface. Excessively high calcium hardness and cyanuric acid levels should be diluted. DILUTION IS THE LOW COST SOLUTION.**

*These procedures are sound technical practices in the industry and are advisory and non-binding. The National Plasterers Council does not regulate, control, or monitor the acts of its members or others in terms of conformance to any of the guidelines, recommendations, or other information contained in these technical procedures.*

<sup>1</sup> 1 mg/l (milligram per liter) = 1 PPM (part per million)    <sup>2</sup> ALWAYS ADD A CHEMICAL TO WATER, NEVER WATER TO THE CHEMICAL.    © 2008 National Plasterers Council, Inc.