Taylor's Water Balance Calculator

INTRODUCTION

To prevent conditions that lead to damage in pools and spas, several water chemistry parameters must be kept in harmony or "balanced": primarily **pH, total alkalinity,** and **calcium hardness,** but also **water temperature** and **total dissolved solids.** Operators and service professionals routinely measure the first three with Taylor's liquid-reagent tests and occasionally check the TDS level with a Myron L meter (available from Taylor) or the simple drop-count titration we offer. When the water has been treated with one of the stabilized chlorines, a sixth parameter—**cyanuric acid**—is also monitored because it makes an unwanted contribution to the total alkalinity reading and must be accounted for.

Once these values have been determined, they are plugged into a complicated mathematical formula to calculate the water's **Saturation Index:**

SI = pH + TF + logCH + logALK – Constant

where SI is the Saturation Index, pH is the measured pH, TF is the temperature factor, CH is the measured calcium hardness, ALK is the measured total alkalinity minus any cyanurate alkalinity, and the Constant is a combined factor for temperature and ionic strength correction, plus concentration conversions.

Water is "ideally balanced" when the SI is zero. It is considered "balanced" when the SI is within the range of -0.3 to +0.5. (Some authorities recommend -0.3 to +0.3.) When the SI is lower, corrosion of the vessel's surfaces and fixtures is likely to occur. Metals dissolve and stain walls. Plaster etches, concrete pits, grout dissolves. When the SI is higher, calcium carbonate comes out of solution, first causing cloudy water and then forming unsightly scale (rough patches) on surfaces and plugging the filter and circulation piping. Heaters are particularly susceptible to corrosion and scaling.

SI CALCULATION MADE EASY

All but the mathletes among us find the Saturation Index calculation daunting. To simplify the process, many years ago Taylor developed a circular kind of slide rule to do the number crunching. We called it the **Watergram® Water Balance Calculator.**

Manage pool chemistry with the aid of Taylor's Watergram Water Balance Calculator.

The Watergram Water Balance Calculator is included in 2000 Series™ kits with the routine tests for water balance and in our countertop laboratories. It also can be purchased by itself (part #6026), in a 12-pack (#6026-12), or in a replacement pack (K-2004) that contains our waterproof testing and treatment guide, *Pool & Spa Water Chemistry*.

WATERGRAM FEATURES

- Does the final subtraction for you—just line up your test results and read the SI.
- Easier to play with different treatment adjustment scenarios to see which factor(s) make the most sense to change.
- Celsius equivalents make it friendly for users outside the U.S.
- Waterproof.
- Handy size.

Taylor Technologies, Inc.
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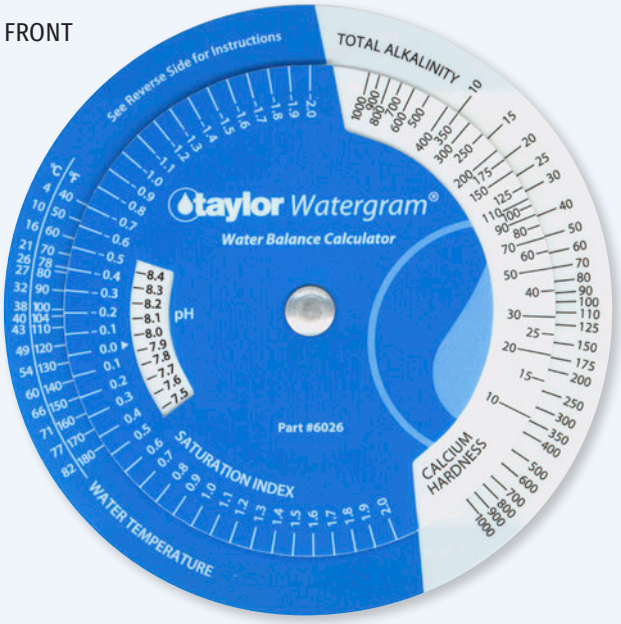
ISO 9001:2008 Certified

ALSO AVAILABLE

- Complete line of professional-grade testing supplies.
- *Pool & Spa Water Chemistry: A Testing & Treatment Guide* (#2004B), a 64-page waterproof reference book.
- Articles on water balance and other chemistry topics in the Learn More section of our website.
- **Video demonstrations** for new users posted on our website.
- Toll-free technical assistance at **800-TEST KIT.**

#6026 (90% of actual size)

FRONT



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