



# Aquatic Consulting Services

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## Pool Tip #15: Swim Suit Damage from Chlorine

Chlorine is a bleach commonly used to whiten and brighten clothes. After many washings, colors do begin to fade and clothing fibers do start to disintegrate. Clothing materials exposed to any amount of bleach, however small, will eventually fade. However, good quality swim suits (as compared to "lay around on the beach and get a tan" suits) are now manufactured from chlorine resistant materials which hold up better in chemically treated pools.

Most swim suits available today are made with either Lycra or Antron fibers. Lycra is Dupont's trademark for its Spandex fiber, and Antron its trademark nylon fiber.

Lycra, a polyurethane (polyester) based elastomer, is always blended with other fibers. Lycra is what allows the bathing suit to stretch. Some Lycra blends have a higher resistance to chemicals. They have long, strong, flexible fiber strands that resist breaking when exposed to chlorine, and are resistant to body oils that break fibers. (More sweat, more body oils and fats at higher temperatures). Some suits are made of Antron rather than Lycra. They are shiny, durable, resist fading from repeated washings and exposure to sunlight, and dry quickly.

Weights and quality of threads, elastics, and fabric weights used in swim suits also influence the life expectancy of a suit.

Additional information about swim suit fabrics and proper care of suits can be obtained from swim suit manufactures such as: Peli-Guard Lifeguard Products, 1131 Victor Street, El Cajon, CA 92021, (619) 447-7946.

Interestingly though, clothes washed in typical washing machines are exposed to much higher levels of chlorine than are bathing suits worn by bathers in swimming pools. Most commercial pools maintain free chlorine levels of between 1.0 and 10.0 parts per million (ppm). A standard capacity washing machine holds approximately 40 gallons of water. As Clorox advertises on TV, you should add a full cup (8 ounces) of 5% chlorine bleach to the wash load. This is the equivalent of adding 4 ounces of 10% sodium hypochlorite. The dosage required to introduce 1 ppm of 10% sodium hypochlorite to 10,000 gallons of pool water is 12 fluid ounces. Therefore, adding four ounces of sodium hypochlorite or the equivalent 8 ounces of Clorox to my wash water raises the chlorine level to approximately 83 ppm.

Swim suits fade and disintegrate as a result of repeated low level chlorine exposures, but more damage is actually caused by unbalanced (aggressive) water conditions, and the effects of body fats and oils on fabric. Surprisingly, suits worn by individuals working in warm water pools sanitized-oxidized with brominated compounds (non bleach halogens) actually disintegrate faster than the same suits worn in chlorinated pools -- indicating more of the suit damage is actually caused by body fats and oils released as a result of warm water exposure than from sanitizer-oxidizer exposure.