

# THE AFFECT ON WEATHER-ABILITY OF OVER-STRETCHING A VINYL SWIMMING POOL

There are many references in the technical literature concerning the adverse affects of mechanical stress on the acceleration of weathering degrading of various types of plastics.

Unfortunately, vinyl swimming pool liners are also vulnerable to this phenomenon. There is general awareness in the industry that excess stretch in an installed liner can result in premature failure and most liner fabricators have been successful in reducing the built-in stress of their liners to a minimum. Curvatures of corners have been increased and computertechnology has enabled more accurate design of liner dimensions for pools of all shapes and sizes.

The steady improvement of quality and increase in design sophistication of vinyl liners has reduced the incidents of failure to a low percentage. However, when failures are reported and samples are available for examination, there is invariably evidence of excess stretch from the area just below the beading down to the waterline.

The degree of stretch varies around the perimeter of the pool and tends to correlate with the severity of weathering degradation. In some cases, measurements of thickness indicate a loss of gauge from 20.0 to a range of 15.0 - 17.0 and from 28.0 to a range of 20.5 - 25.0. The thickness near the bottom of the wall is usually closer to normal.

Investigation of several liners that have failed prematurely indicate that a shortfall in the perimeter of 3 ft. or more is possible. Experimental tests simulating the stretch in the perimeter, as well as the consensus of experts in the industry, however, indicate that a 3.0 - 4.0% shortfall of the perimeter alone cannot account for the extremely high gauge reduction in the area below the beading. Downward stretch to fill a larger pool cavity must also be involved.

Why are perimeters and/or other dimensions of a small fraction of liners out of tolerance? Are measurements for custom replacement liners always taken correctly? Improving the accuracy of all critical dimensions could prove to be an effective way of preventing some premature failures.