

PRESSURE CRACKING DURING STORAGE

The major type of deterioration that we are aware of during storage of vinyl liners is the development of “pressure cracks” under certain conditions. More recent investigation of this phenomenon has revealed that it is a two phase process.

PHASE I

1. During Phase I, a heavy crease develops on the inside of a double or triple fold.
2. The factors that affect the crease formation adversely are:
 - i. HIGHER TEMPERATURE DURING STORAGE - the higher the temperature, the softer the vinyl becomes, causing a greater amount of material displacement in the crease area.
 - ii. HIGHER PRESSURES - the greater the weight on the fold, the higher the rate.
 - iii. TIME - the longer the fold is under pressure, the deeper the crease will become.

PHASE II

Phase II is by far the more critical part of the process and involves the unfolding of the liner and flattening of the creased areas at moderately lower temperature of 38-50° F.

If the liner is not allowed to completely warm up to 70-72° F, the deformed inner loop of the crease, which has become shorter due to creep and is stiffer as a result of the lower temperature, cannot withstand the excess tension caused by the unfolding action, splits open, transforming the crease into a crack.

If, however, the liner returns to room temperature, flexibility increases, minimizing the tension on the inner loop and greatly reducing the probability of splits developing.

Recommendations for Minimizing Formation of “Pressure Cracks”

1. Do not unfold liners at temperatures below 70°F, in the plant or prior to installation of the liner at the pool site. This is especially critical during installation in the fall, when morning as well as day time temperature can be well below 72° F.
2. Do not store a boxed liner outside or in an unheated storage area prior to installation at the pool site during the cooler spring or fall season. The liner may not necessarily warm up sufficiently in a span of a few hours in the morning due to insulation provided by the outer layers of the liner.
3. Minimize the length of time finished liners are stored in cartons.
4. Ideal storage temperature is 70-72°F.
5. Minimize or eliminate stacking of cartons to reduce pressure.
6. Keep the number of folds in the liner to a minimum.
7. Use larger cartons for large liners; cartons that resist collapsing under pressure will afford more protection to the liner.