

Oil Canning and Soft Center Glass are phenomena that infrequently occur in tempered glass. In the production of tempered glass, the glass is heated to approximately 1200°F and then quickly cooled (quenched). The quenching of the glass creates a high compression level on the outer surfaces of the glass lite, and a tension level in the inner layer. When broken, it's the resulting high center tension layer that causes the glass to break into relatively harmless pieces usually without sharp edges or dagger-like shapes, thereby, reducing the dangers of being cut. The tempering process also produces a piece of glass that is 4 times as strong as standard annealed glass.

Oil Canning and Soft Center Glass can be collectively referred to as bi-stable glass. This phenomenon can occur from the difficulties in uniformly heating and then cooling a piece of glass during the tempering process. As glass becomes larger and more square, the ability to uniformly cool the entire surface becomes more difficult. When the glass edges cool before the center cools a difference results in compressive stresses between the glass edge and central area. This difference in stress levels can sometimes cause tempered glass to deflect more easily than standard non-tempered glass. In some cases the glass will wobble freely in the center (Soft Center Glass). In other cases, the glass will deflect and hold its position; but later “pop” back out when pressed from the other side of the glass (Oil Canning). Pressure from the other side can come from a change in barometric pressure, air temperature or wind.

It's important to note that Oil Canning and Soft Center glass meets all safety glass requirements. The glass still has the greater strength associated with the tempering process and is not at greater risk for breaking. In addition, there is no industry standard that addresses either issue.