



Strainoptic Technologies, Inc.

STRAIN VIEWER SV-2000

BULLETIN SV-2000

Residual Strain

Residual strains are introduced by nearly all techniques used in polymer manufacturing. They form as a result of molding, thermoforming, extrusion, stretching, drawing, casting, joining or other strain-inducing processes.

In many manufacturing processes, parameters such as temperature, cooling speed, packing pressure, clamping forces, etc. are optimized to minimize strains. If not controlled, residual strains will reduce material strength, generate surface-cracking, contribute toward warpage and may result in product failures.



Figure 1. SV-2000 Strain Viewer

Evaluation of residual strains can lead to elimination of defective parts, process improvement, better control of annealing operations, etc. These results can be accomplished using Strainoptic's SV-2000 Strain Viewer.

In clear and translucent polymers, residual strains become visible when viewed with the SV-2000 Strain Viewer. The strains appear as a colorful fringe pattern, which reveals a wealth of information. The Strainoptic instruction manual guides you in the art of reading and interpreting the color pattern. Quantitative measurements can also be obtained using an optional compensator in accordance with ASTM test methods.

In production, this simple test can quickly identify defective parts and alert operators to adjust process parameters. The procedure is non-destructive and fast!



Figure 2. Residual strains become visible using the SV-2000 Strain Viewer and can be quantified with an optional Strainoptic LWC-100 Compensator

Strain Viewer SV-2000

Strainoptic's SV-2000 Strain Viewer is a large field polariscope suitable for inspection of nearly any size product. The standard viewing area is 20 x 16 inches (500 x 400 mm). The SV-2000 can be set up horizontally or vertically.

Unlike simple crossed polarized sheets, the SV-2000 uses circularly polarized light. This assured that stresses are observed regardless of specimen position or orientation.

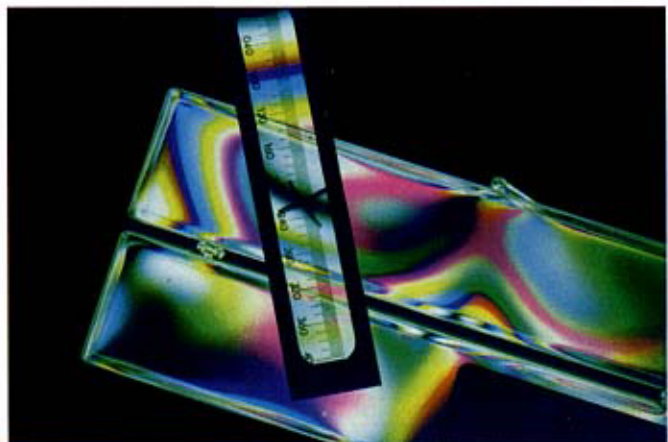


Figure 3. Quantitative evaluation using a Strainoptic LWC-100 Compensator