

STRAINOPTICS®

PSV-100 Portable Strain Viewer



Available in two models:

PSV-100-P - the standard model featuring plane (linear) polarization. For evaluation of annealing and uniform stresses.

PSV-100-C – features circular polarization. Recommended for high stress gradients, such as molded plastic parts.

Features:

- High-efficiency polarization optics
- Battery-powered LED illuminator
- Flexible working space, adjustable to 7 in (180 mm)
- 3 x 3 in (75 x 75 mm) field of view
- Handheld or bench operation, weighs only 3 lb (1.4 kg)
- Instruction manual with color photos
- Carrying case

Residual stress can enhance a product, making it stronger – or degrade it causing cracking, warping, and poor performance. The PSV-100 is a rugged, portable instrument that can be used to reliably reveal problems that often go unseen until costly field failures occur.

Flexible enough to accommodate large samples, the PSV-100 illuminator is powered by four D-cell batteries (included). By repositioning the extendable arms, it can be easily configured to work in “reflective” mode, enabling inspection of installed window units from one side.

Options include a tint plate for color enhancement of stress patterns in annealed samples.

Applications:

- Evaluation of temper uniformity in glass
- Verification of annealing
- Observation of strains in molded parts
- Detection of weld and flow patterns
- Examination of flow patterns and gate efficiency
- Identification of irregularities due to mold deficiencies or temperature gradients

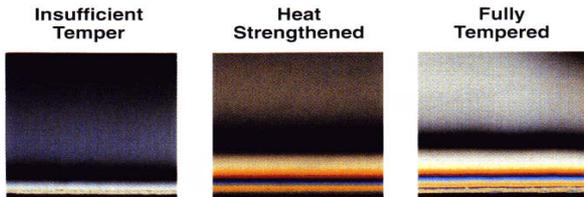
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TYPICAL APPLICATIONS

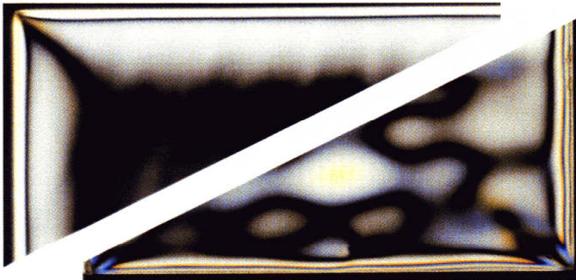
EVALUATION OF TEMPERED GLASS

Glass products are designed as annealed, heat-strengthened or fully tempered. Edge observation using the PSV-100 provides fast confirmation of the degree of tempering. During the same observation you can assess the temper uniformity (or non-uniformity) and therefore the quality of the heat treating process.



Stress pattern for 1/4 in. thick glass

Uniform heat treating



Non-uniform heat treating

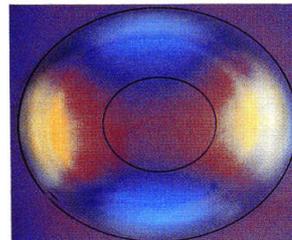
EXAMINATION OF ANNEALED PRODUCTS

A stress-relieved product is free of birefringence and appears uniformly dark in polarized light, with the exception of light or color spots, where stress was not fully relieved. A simple glance can reveal if the anneal is satisfactory. Adding a tint plate enhances the observed pattern by amplifying the difficult to interpret small stress signal into emphasized colors.

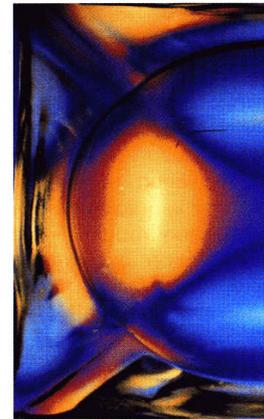


PSV-100 provides a color chart used for interpretation of stress patterns

Color-enhanced strain pattern is observed using a tint plate. (optional)



Inspection of glass containers (ASTM C-148)



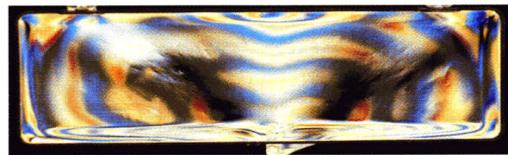
INSPECTION OF CAST, MOLDED, AND MACHINED POLYMERS

Relaxation of residual strain can generate serious distortion, affecting the function of the product.



Excessive birefringence in molded lenses.

Gate efficiency assessed with PSV-100.



Cold flow produces non-homogenous material and weak spots.

Other Strainoptics Products

Strainoptics manufactures a complete range of manually operated and PC-based instruments for both qualitative and quantitative measurement of residual stress and birefringence in transparent or translucent materials. These include on-line stress scanners, visual and automatic edge stress meters, laboratory polarimeters and polarizing microscopes, specialized instruments for measuring stress and light transmission in automotive glass, roller wave gauges for measuring surface distortion, and polariscopes for visual inspection. We also offer laboratory testing services and training, as well as calibration/repair services. Custom engineering inquiries are welcome. For more information, please visit our website or call.

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