

News Release

Laser Optics
Achromatic Waveplates

July 24, 2003
For Immediate Release

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Achromatic Waveplates Solve Problem Of Variable Retardation With Tunable Laser Sources

Delray Beach, FL — Tower Optical Corp. has just introduced a product line of *Achromatic Waveplates, designed to maintain a constant retardation over a wide range of wavelengths.* These Achromatic Waveplates overcome the problems of True Zero, Zero Order and Multiple Order waveplates with regard to variations in retardation with variations in wavelength.

Background

A waveplate is an optical device that resolves light waves into two orthogonal linear polarization components. In so doing the waveplate also produces a phase shift between those components. This phenomenon is called retardation. A waveplate, made of crystal quartz, a birefringent material, dictates that the spectral range is approximately 20 nm, after which, the retardation changes are unacceptable. For tunable laser sources, or ones with large spectral widths a waveplate is required that is independent of wavelength. This can be accomplished with an Achromatic Waveplate.



Technology

An Achromatic Waveplate is fabricated using two different crystalline materials whose birefringence shifts in Retardance, with respect to wavelength, will cancel each other. This effect produces a waveplate with nearly constant retardation over a wide spectral range, typically several hundred nanometers. The two materials used by Tower Optical are Crystal Quartz and Magnesium Fluoride, MgF₂.

The Product Line

The Achromatic Waveplate product line covers the range or 465nm to 1650nm. Within this range Achromatic Waveplates are offered in three distinct spectral ranges: 465-610nm, 700-1000nm and 1200-1650nm. These ranges cover UV to IR. Over each of these ranges the waveplate exhibits fairly constant Retardation. In addition, for each range the product line includes waveplates for both $\frac{1}{4}$ and $\frac{1}{2}$ wave Retardation. The waveplate has a clear aperture of 11.5mm. The airspaced versions are standard, however, a cemented version is available as a special order. All Achromatic Waveplates are supplied mounted in 25.4mm mounting rings.

The Series AO12A-1/4 or 1/2-X (X=wavelength range) Achromatic Waveplates are available from Tower Optical Corp. for \$695 in small quantities with a 30% discount for quantity. For more information visit www.TowerOptical.com or contact Tower Optical at sales@TowerOptical.com or 800-526-7560 x 17, 561-243-8660 x 17 or fax 561-243-8688.

Two photographs are available in .TIF format, at <http://www.toweroptical.com/Image4> and Image5.

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