

CLC Circular Polarizers

CHELIX offers new single component approach to circular polarization

CHELIX has commercialized new cholesteric liquid crystal polymer circular polarizers. These one-component systems offer better thermal and power handling, better transmittance and cost with competitive contrast ratios.

Unique benefits from novel cholesteric liquid crystal materials

CHELIX has invented a revolutionary technology for fabricating one-component narrow or broadband, thin circular polarizers. These non-absorptive polarizers are based on CHELIX's unique cholesteric liquid crystal polymer (CLC) technologies. The transmitted polarization is orthogonal to the reflected polarization (in a given band). The films can be engineered to circularly polarized light in any portion of the spectrum, UV to infrared, creating high-performance optical components that have good contrast ratios, transmittance and polarization. These features can be customized for specific use.

Unique Features of CLC based Circular Polarizers

CLC polarizers are made of liquid crystal polymers with molecules that self-align into a helical configuration.

CHELIX has developed the capability of adjusting the center wavelength and broadening the bandwidth.

CLC based circular polarizers have several unique features:

- **Single component circular polarizer** (no need for a quarter wave)
- **Unique reflector that preserve polarization** (e.g. LH polarized light reflected as LH)
- **Highly transmissive and non-polarizing outside of operating range**

And they have better performance than conventional 2-component, circular polarizers:

- **Higher transmittance** in band
- **Higher power handling** capability
- **Higher operating temperature range**
- **Lower cost**

CLC Circular Polarizers Design Flexibility

CLC Circular Polarizers can be customize to specific need:

- **Narrowband** (20-50 nm) or **broadband** (100 - 700+ nm)
- **Adjustable center wavelength** from 340 nm to more than 2000 nm
- Choice of substrates
- Large format capability

CHELIX can custom manufacture arrays to meet your specific need.

