



# THz Polarizers



We offer the following polarizer types operating in far IR and THz wavelength ranges:

## 1. Polyethylene Polarizers\*

These are transmission gratings. Polarizer grating is formed by triangular notches with one aluminum-coated facet.

\*temporarily out of production

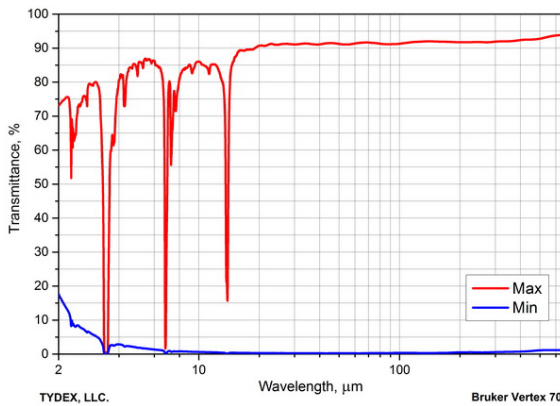


Fig. 1. Effective transmittance (Max) and unwanted polarization transmittance (Min) of a polyethylene polarizer.

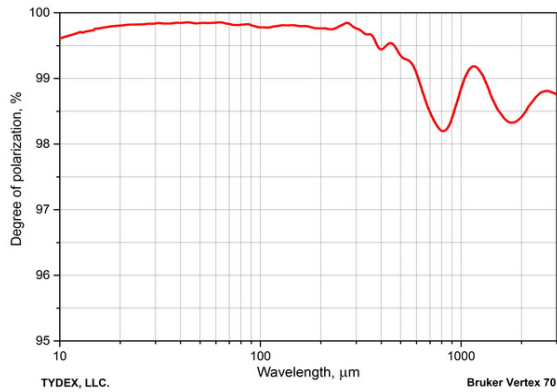


Fig. 2. Degree of polarization by a polyethylene polarizer.

## 2. Polypropylene Polarizers

These are also transmission gratings, but produced using holographic technology (sine-shaped profile with partial aluminum coating).

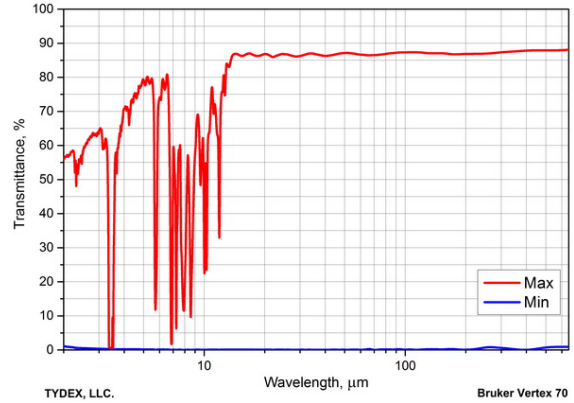


Fig. 3. Effective transmittance (Max) and unwanted polarization transmittance (Min) of a polypropylene polarizer.

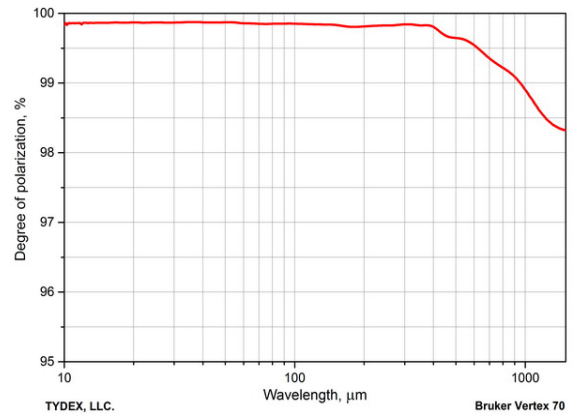


Fig. 4. Degree of polarization by a polypropylene polarizer.

### Data Sheet:

Substrate material	Polyethylene	Polypropylene
Spectral range, $\mu\text{m}$	$\geq 15$	$\geq 15$
Standard aperture, mm	D25	D25
Standard frame dimensions, mm	D34.9 x 7.9	D40x8
Maximum aperture, mm	50	45
Notches/dashes per mm	1200	1200
Effective transmittance K1, %	85-100 (avg. 91) @15-500 $\mu\text{m}$	70-90 (avg. 80) @15-1500 $\mu\text{m}$
Unwanted polarization transmittance K2, %	<1 up 8 $\mu\text{m}$ <0.3 @15-600 $\mu\text{m}$ <1 @600-1500 $\mu\text{m}$	0.2 @15 $\mu\text{m}$ <0.3 @15-600 $\mu\text{m}$ <1 @600-1500 $\mu\text{m}$
Degree of polarization $P1=(K1-K2)/(K1+K2)$ , %	98 @8 $\mu\text{m}$ >99 @15-500 $\mu\text{m}$ >98 @500-1500 $\mu\text{m}$	99.5 @15 $\mu\text{m}$ >96 @15-1500 $\mu\text{m}$
Extinction coefficient $E=K1/(2xK2)$	100-1500 @15-300 $\mu\text{m}$ 100-700 @300-1500 $\mu\text{m}$	100-10000 @15-500 $\mu\text{m}$ 75-200 @500-1500 $\mu\text{m}$



# THz Polarizers

## Applications:

- THz microscopy;
- Studying molecule orientation in crystalline and polymer films;
- Imaging optics;
- Sensors and detectors;
- Fourier spectroscopy;
- THz spectroscopic studies.

## Key properties:

- Can be used in a very wide wavelength range, from mid-IR to THz;
- High transmittance in far IR region;
- High degree of polarization;
- Polarizers are supplied in frames (protective rings marked with notch/dash direction).

## Advantages of grating polarizers over metal mesh-based polarizers:

- Lower price;
- Single polarizer can be used in a wide wavelength range.

For price quotation and delivery please fill in our request form at the web site or send us a letter.