

Properties of Common Optical Polymers Suitable for SPDT/HRDT™

| | Unit | Polymers suitable for both SPDT and HRDT | | | Polymers suitable for HRDT only | |
|-------------------------------------|-----------------------|--|-------------|----------------------------|---------------------------------|-------------------------------|
| | | Acrylic | Polystyrene | Cyclic Olefin | Polyetherimide | Polyethersulfone |
| Trade Name | | Plexiglas | Styron | Zeonex | Ultem | Radel |
| Refractive Index | | | | | | |
| n_f (486.1 nm) | | 1.497 | 1.604 | 1.537 | 1.689 | 1.671 |
| n_d (589 nm) | | 1.491 | 1.590 | 1.530 | 1.682 | 1.653 |
| n_c (656.3 nm) | | 1.489 | 1.585 | 1.527 | 1.653 | 1.641 |
| Abbe Value V_d | | 57.2 | 30.8 | 55.8 | 18.94 | 22 |
| Transmission | % ¹ | 92–95 | 87–92 | 90–92 | 82 | 80 |
| Max Continuous Service Temp. | °F | 161 | 180 | 253 | 338 | 356 |
| | °C | 72 | 82 | 123 | 170 | 180 |
| Water Absorption | % ² | 0.3 | 0.2 | <0.01 | 0.25 | 0.5 |
| Haze | % | 1–2 | 2–3 | 1–2 | | 3.9 |
| dN/dT | x10 ⁻⁵ /°C | -8.5 | -12.0 | -8.0 | | |
| Color/Tint | | Water clear | Water clear | Water clear | Amber | Amber |
| Key Advantages | | High transmission & purity | High index | Low moisture absorption | Impact resistance | Impact resistance |
| | | Scratch resistance | Clarity | High transmission & purity | Thermal & chemical resistance | Thermal & chemical resistance |
| | | Chemical resistance | | Good thermal stability | High index | High index |
| | | High Abbe value | | | | |
| | | Low dispersion | | | | |
| | | High melt flow | | | | |

¹ At 400–800 nm, 3 mm CT

² Per 24 hours