

POLY IR® PLASTICS

for the 8 to 14 micrometer passive infrared wavelength range

POLY IR® is our registered trademark for our line of infrared-transmitting plastics. These plastics may not necessarily transmit in the 8 to 14 micrometer region. For example, POLY IR® 5 material transmits well through the visible-light region of the spectrum down to 4.2 micrometers. POLY IR® 6 material transmits well around 1 micrometer, and is opaque elsewhere. The POLY IR® plastic materials for the 8-14 micrometer region are listed below.

POLY IR® 1 material is an early attempt, no longer recommended. It is softer and more rubber-like than our later offerings. It transmits more poorly in the 8 to 14 micrometer region, but is superior at shorter wavelengths, so it has some interest for applications other than passive infrared devices. It is available in 0.010 and 0.015-inch (0.25mm and 0.38mm) thicknesses.

POLY IR® 2 material is our main 8 to 14 micrometer product. It has excellent rigidity and excellent transmittance in the 8 to 14 micrometer region. It is ultraviolet stabilized for long life in full sun. It is available in thicknesses of 0.0005, 0.003, 0.005, 0.0075, 0.009, 0.012, 0.015, 0.020, and 0.027 inches (0.01, 0.08, 0.13, 0.19, 0.23, 0.3, 0.38, 0.51, and 0.69mm).

POLY IR® 4 material is a pigmented version of POLY IR® 2 material. The pigmentation is not specifically intended as a filter for visible light, but rather for appearance. POLY IR® 4 material is available in a variety of colors and thicknesses. There is no significant increase in transmission loss over POLY IR® 2 material for white POLY IR® 4 materials, and minimal increases for the other colors. White POLY IR® 4 material is available in thicknesses of 0.003, 0.009, 0.015, and 0.020 inches (0.08, 0.23, 0.38, and 0.51mm). Black, ivory, yellow brass, antique brass, verdigreen, light grey, and charcoal grey POLY IR® 4 materials are available in a thickness of 0.015 inches (0.38mm). Dark brown and almond POLY IR® 4 materials are available in a thickness of 0.005" (0.13mm). Medium grey brown and olive green POLY IR® 4 materials are available in a thickness of 0.010" (0.25mm).

POLY IR® 7 material is a pigmented version of POLY IR® 2 material, but it is pigmented to reduce false alarms due to "white light." It is very effective in doing so, but shows an increased loss in the 8 to 14 micrometer region of about 15 percent over POLY IR® 2 material or POLY IR® 4 material. POLY IR® 7 material is available in white in 0.010, 0.015, and 0.020-inch (0.25, 0.38, and 0.51mm) thicknesses, in dark grey (almost black) in 0.010 and 0.015-inch (0.25 and 0.38mm) thicknesses, and in off-white, beige, and light grey in 0.015-inch (0.38mm) thickness. Only dark grey POLY IR® 7 material is adequately stabilized against ultraviolet light so that we can recommend it for outdoor applications.

We can mold any lens array in any of the above materials—POLY IR® 1, 2, 4, and 7. We also sell these materials with a matte surface finish for windows for passive infrared products, and polished to optical quality for scientific endeavors and critical applications.

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