

# IR Window/Lens Materials for IR Sensors

2/7/11

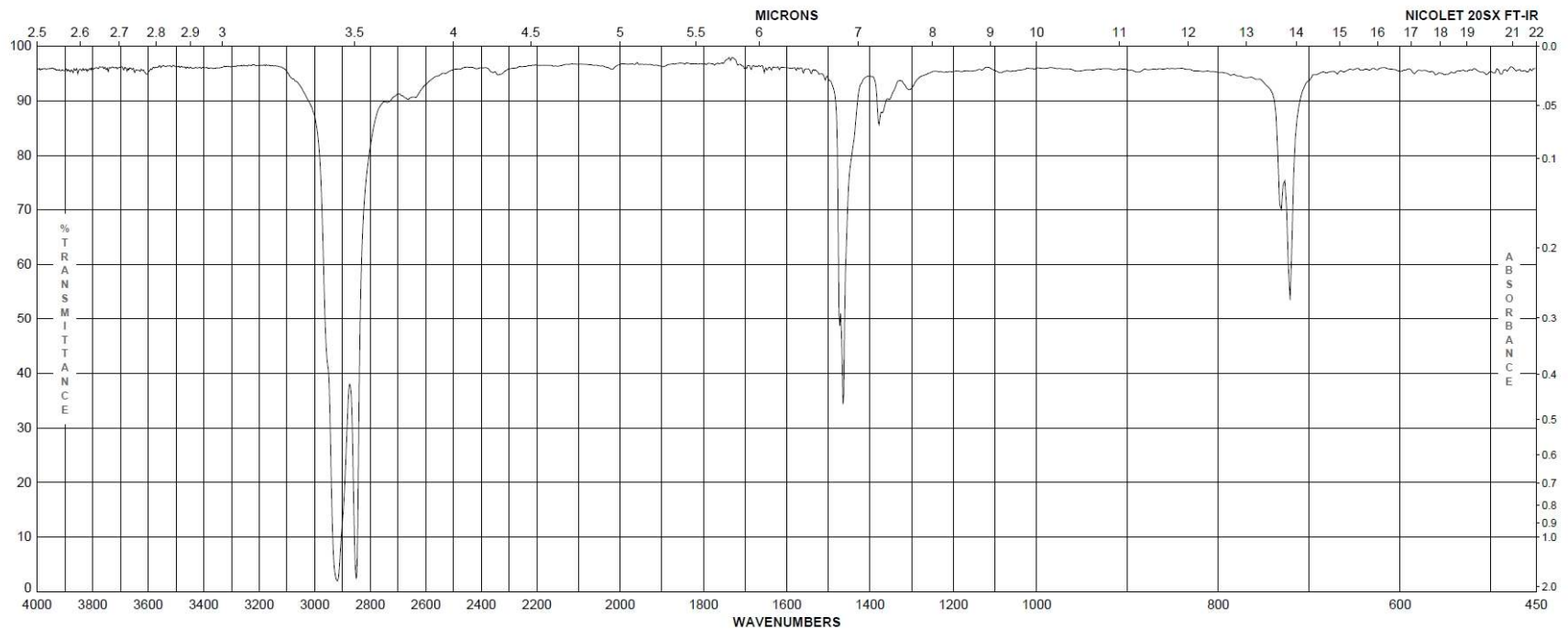
# Polyethylene

Cost: \$

Max Transmission (4-8um): 96%

Min Transmission (4-8um): 35%

Notes: High transmission with exception of 6-7um



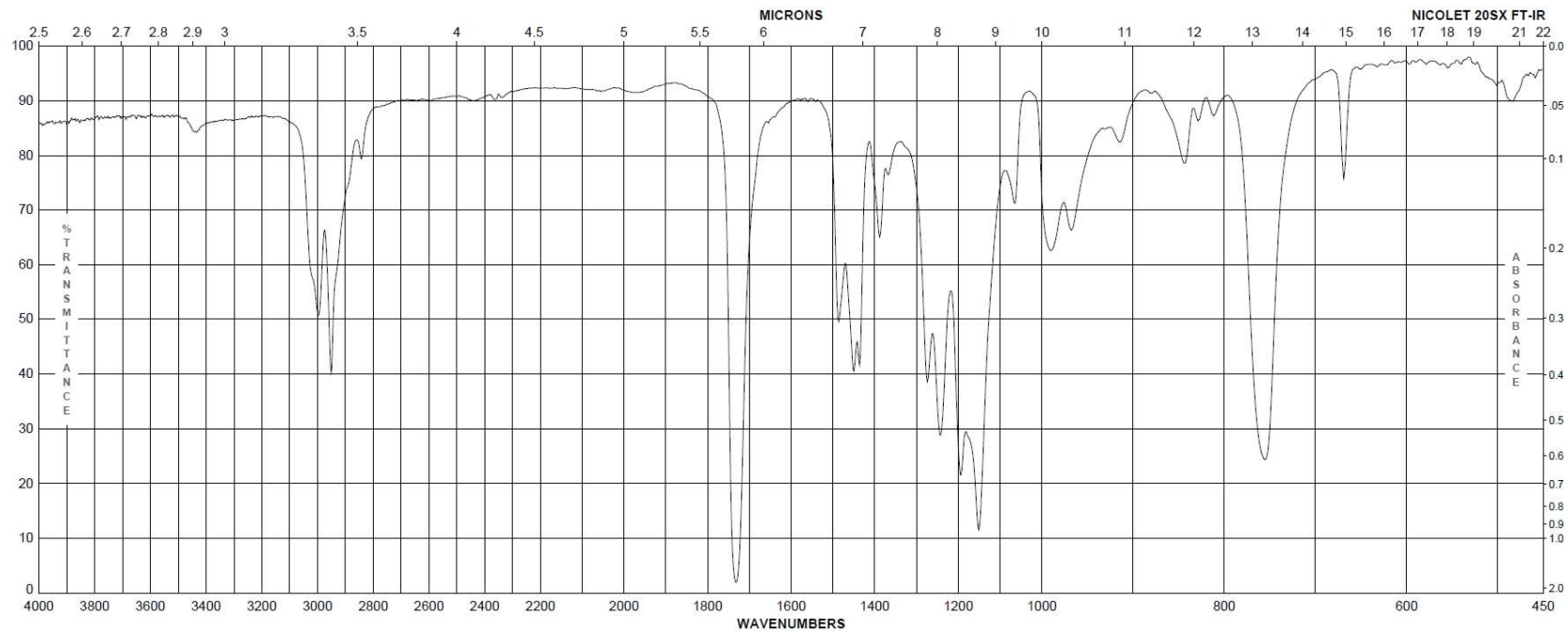
# Polypropylene

Cost: \$

Max Transmission (4-8um): 92%

Min Transmission (4-8um): 2%

Notes: Transmittance is good below 5.5um



# Fresnel Tech Poly IR® 2

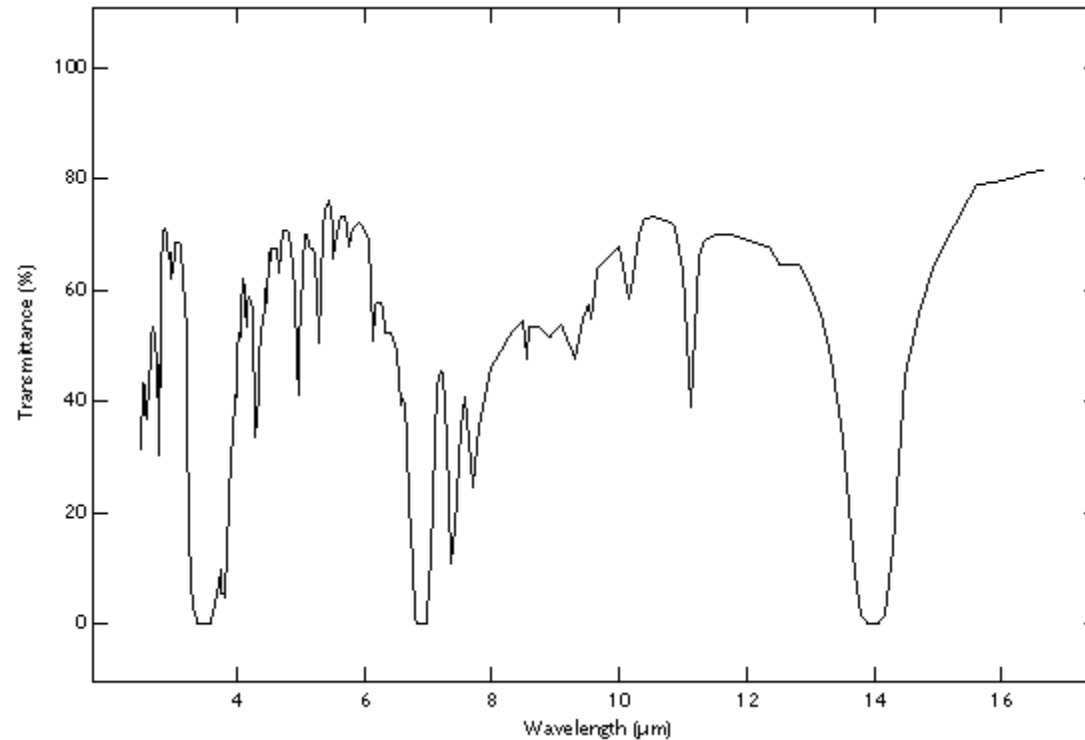
<http://www.fresneltech.com/>

Cost: \$

Max Transmission (4-8 $\mu$ m): 78%

Min Transmission (4-8 $\mu$ m): 0%

Notes: Good transmission with exception of  $\sim$ 7 $\mu$ m



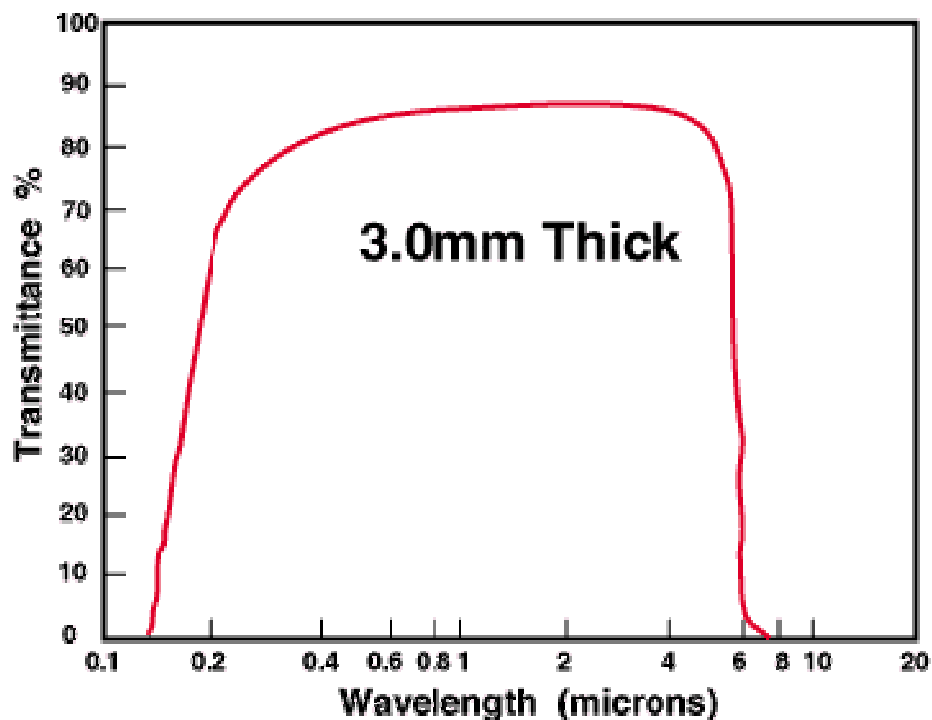
# Sapphire ( $\text{Al}_2\text{O}_3$ )

Cost: \$\$

Max Transmission (4-8 $\mu\text{m}$ ): 85%

Min Transmission (4-8 $\mu\text{m}$ ): 0%

Notes: Durable Material, flat response until 6 $\mu\text{m}$



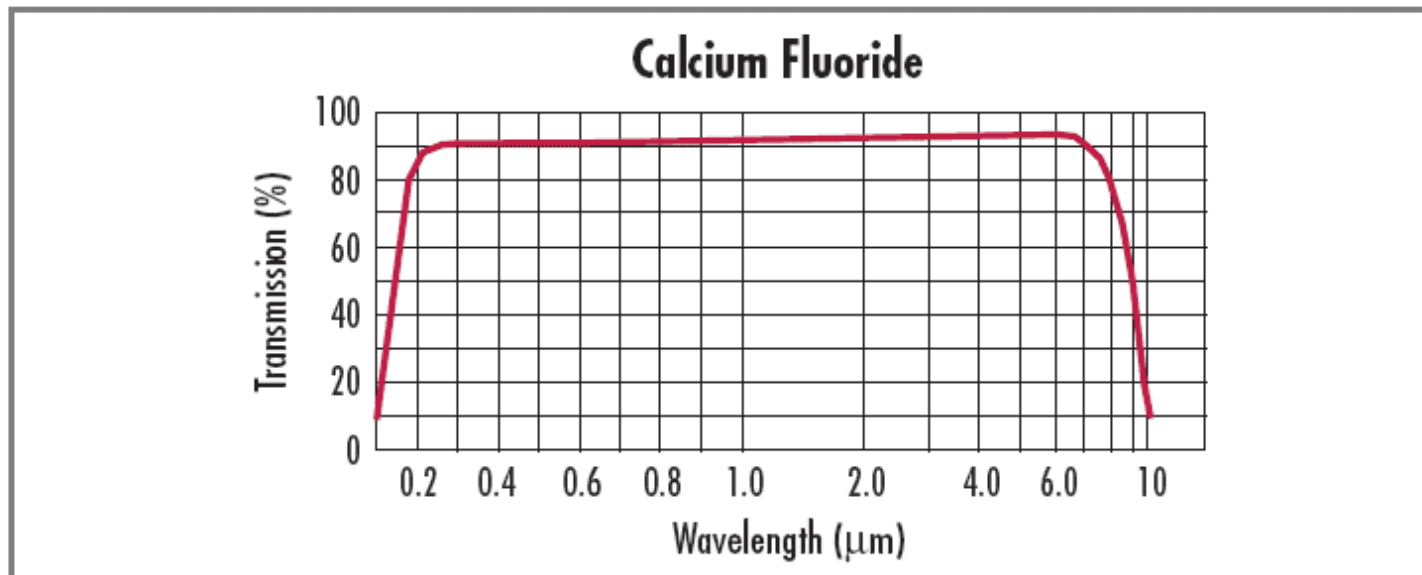
# Calcium Fluoride (CaF<sub>2</sub>)

Cost: \$\$\$

Max Transmission (4-8 $\mu$ m): 93%

Min Transmission (4-8 $\mu$ m): 92%

Notes: Very flat transmission response, water soluble material



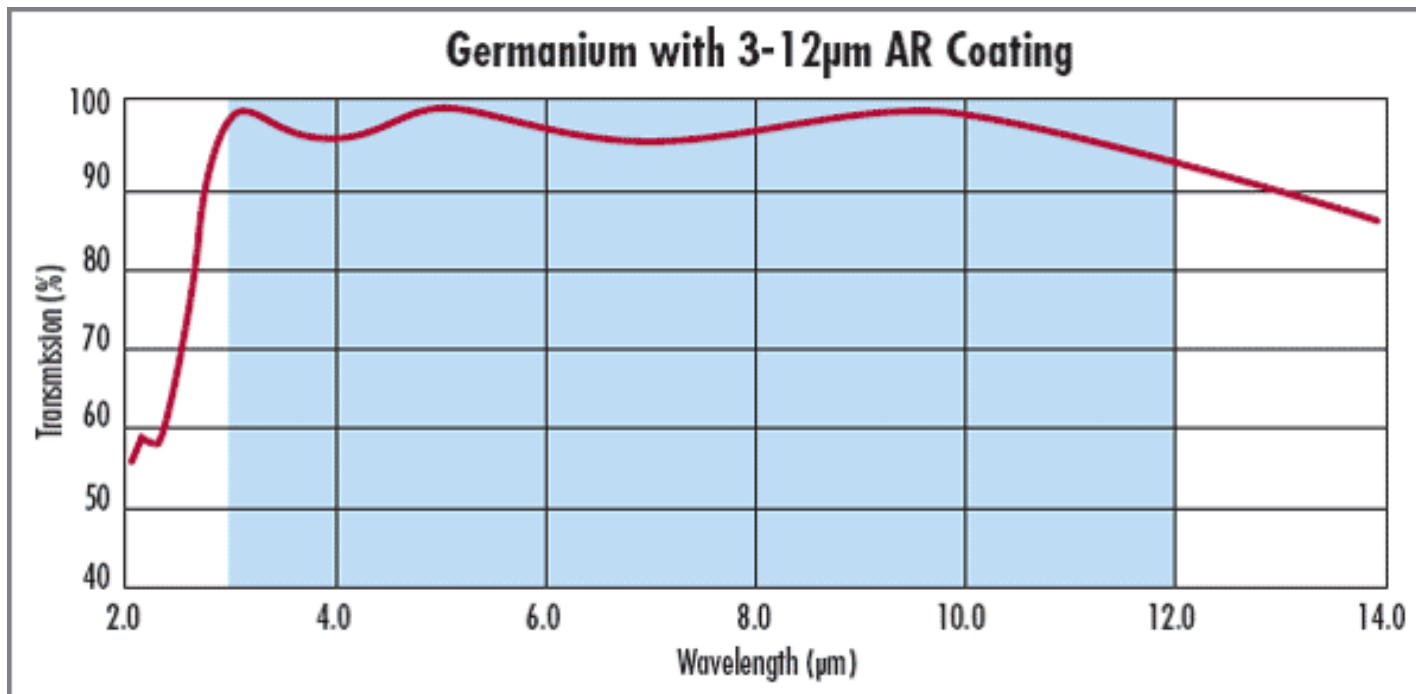
# Germanium (Ge)

Cost: \$\$\$

Max Transmission (4-8 $\mu$ m): 99%

Min Transmission (4-8 $\mu$ m): 96%

Notes: Requires anti-reflection coating, not reliable above 100C



# Zinc Selenide (ZnSe)

Cost: \$\$\$

Max Transmission (4-8 $\mu$ m): 97%

Min Transmission (4-8 $\mu$ m): 96%

Notes: Requires anti-reflection coating, soft material, easily damaged

