

What Are IR Camera Lenses Made Of?

Flir article series

<https://www.flir.com/discover/rd-science/what-are-ir-camera-lenses-made-of/>

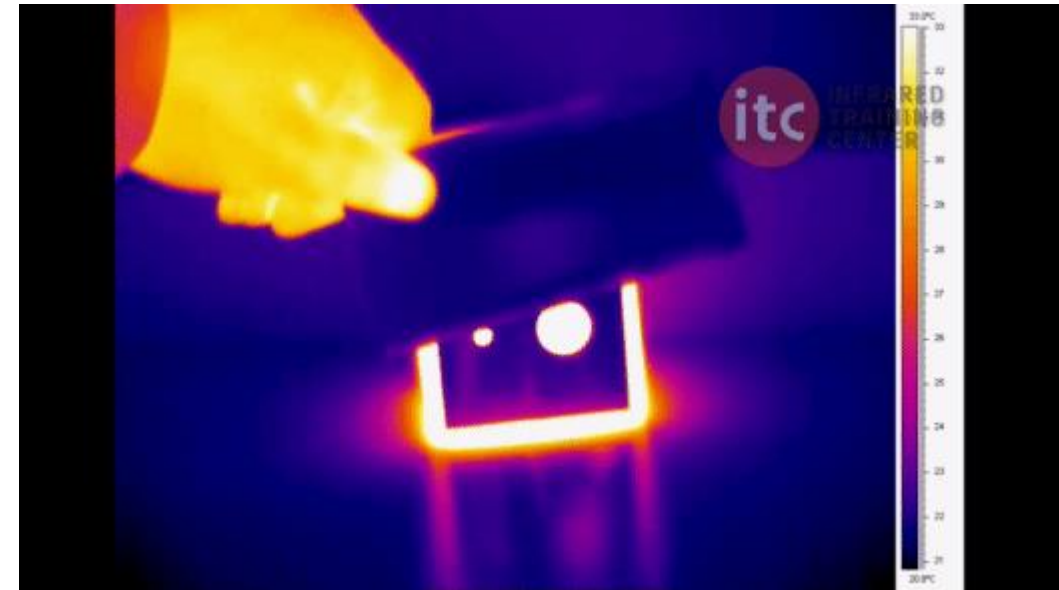


IR camera substances

- IR camera lenses are made out of substances like **germanium**, or other materials with low absorption in the infrared spectrum. But why is it necessary to use these specialized components instead of a more common substance like glass?

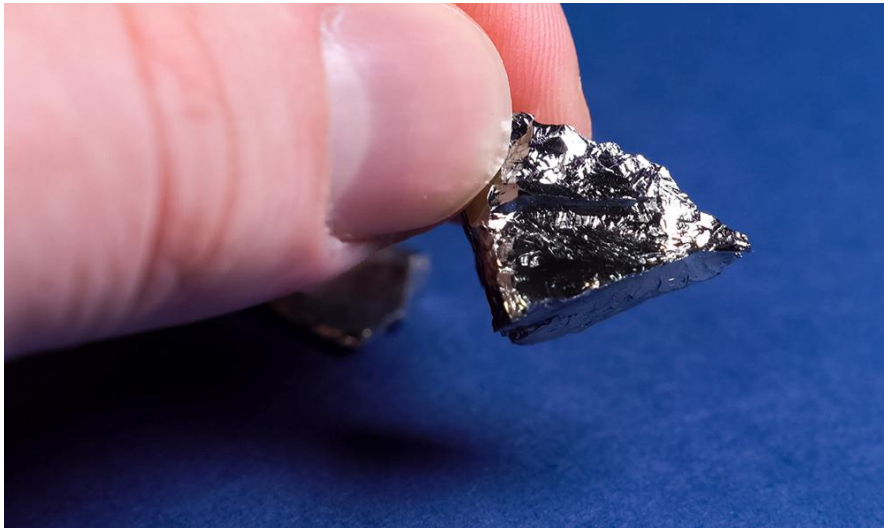
LENS - VIS material and IR material is different

- Infrared radiation behaves very differently from visible light. Because of this, infrared camera lenses need to be made from different materials than regular cameras. The properties for a given material in the visible world might have no bearing on its properties in the infrared world—glass, for instance, is extremely transparent to radiation in the visible spectrum, but in infrared, glass is completely opaque:



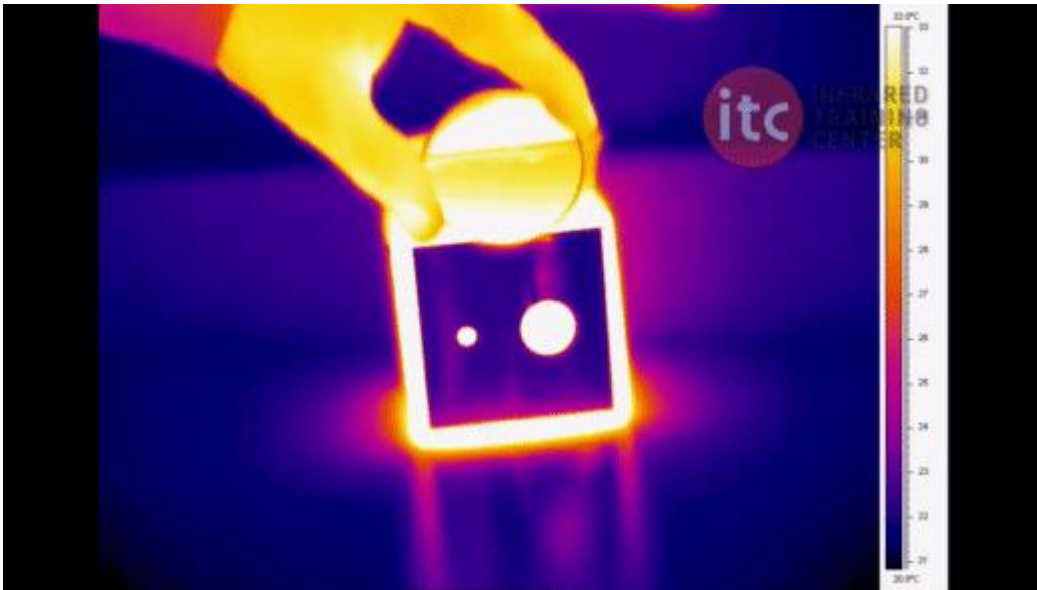
Germanium – opaque substance

- The opposite can be true. Germanium, a semi-metallic element similar to silicon, is completely opaque in the visible world:



IR spectrum range 100% transparent

- but nearly 100% transparent in the infrared:



- It's for this reason that FLIR camera lenses are made of germanium or other materials that are transparent in the infrared spectrum.