

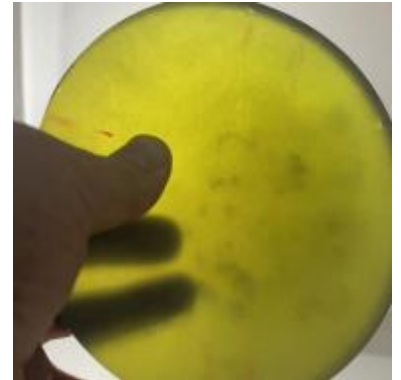
HARD MATERIALS

Silicon Carbide (SiC)

Silicon carbide (SiC) is a revolutionary compound semiconductor known for its exceptional properties ideal for applications in harsh and extreme environments. With one of the highest thermal conductivities of any semiconductor material, SiC excels at high temperature, high power, and high frequency operation.

In power electronics, SiC enables high-efficiency, high-voltage switching devices, converters and inverters. For RF and microwave devices, SiC enables high frequency, high power operation for radar, communications and plasma systems.

The material's wide bandgap, high thermal conductivity and stability also make it ideal for harsh environment sensors, detectors and high temperature integrated circuits for applications like aerospace, automotive, energy exploration and industrial process monitoring.



Key Properties:

- Wide transparency: UV to mid-IR (400-6000nm)
- Wide bandgap (2.3-3.3 eV)
- Very high thermal conductivity (350-490 W/m-K)
- High breakdown electric field (2.2-2.5 MV/cm)
- High saturated electron drift velocity
- Excellent chemical inertness and radiation hardness

