

Silicon

1. General:

Silicon is used for laser mirrors and IR lenses and windows. Its low density makes it an ideal material for all optics where weight is critical.

2. Material Properties

Chemical symbol:	Si
Atomic number:	14
Atomic weight:	28.085
Density:	2,33 g/cm ³
Melting point:	1414 °C
Heat capacity:	703 J kg ⁻¹ K ⁻¹
Thermal conductivity:	149 W m ⁻¹ K ⁻¹

3. Standard Tolerances:

Diameter:	+/- 0,1 mm
Thickness:	+/- 0,1 mm
Wedge:	< 3 arc min

4. Surface Quality:

Figure:	up to 1/10 λ
Roughness:	< 5 nm Ra

5. Delivery forms

- planar
- spherical / aspherical
- toric
- cylindrical

6. Coatings

- a) Metallic
 - Gold for IR systems
 - Silver / Aluminum for UV-IR
- b) Laserline coatings
 - CO₂ laser mirrors
 - YAG/fiber/diode laser mirrors
- c) Antireflection
 - AR/AR for 3-5 μ m
 - bandpass filters

