



WAFERS

II-V / III-VI / IV /SOI

Wafers II-VI

Codex International provides a large range of II-VI group single crystal compound wafer for mainly IR optics and THz detectors application.

Maximum possible diameter is 60 mm.

Codex International is one of the very few wafer manufacturer able to offer doped crystal and various type of annealing as per customer's requirement. Wafer is produced as rectangular and round shape with any required orientation and one or two sides polished surface.

Wafer II-VI available	Max Size	Resistivity range	Band Gap 300K	Conductivity
ZnTe	Ø 40mm	$>10^5 \Omega.cm$	2.28 eV	P
CdZnTe	Ø 40mm	$>10^9 \Omega.cm$	1.48 eV	P & N
ZnS	Ø 40mm	$>10^4 \Omega.cm$	3.67 eV	N
ZnO	Ø 40mm	$>10^4 \Omega.cm$	3.21 eV	N
ZnSe	Ø 40mm	$>10^8 \Omega.cm$	3.67 eV	N
CdTe	Ø 60mm	$>10^9 \Omega.cm$	1.5 eV	P & N
CdS	Ø 50mm	$>10^8 \Omega.cm$	2.54 eV	N
CdSe	Ø 50mm	$>10^7 \Omega.cm$	1.75 eV	N



For other technical specifications, please contact us :

www.Codex-international.com

Contact@codex-international.com

Tel : +33 146359657

Wafers III-V

Wafers III-V are the basis for manufacturing of all optoelectronic components, high performance microwave and digital system markets due to their semiconductors direct transition properties.

Wafers III-V have different bandgap compared with Silicon wafer. Therefore they can also be used in light-receiving elements like photo-diode.

III-V Wafers crystallize with high degree of stoichiometry and have both n-type and p-type. Our III-V wafers have high carrier mobilities and direct energy gaps.

Wafer III-V available	Max Size	Band Gap 300K	Available Dopant (Type)
InSb	Ø 2"	0.17 eV	Si (N), Zn (P), Undoped (N)
InAs	Ø 3"	0.4 eV	Si (N), Zn (P), Undoped (N)
InP	Ø 3"	1.35 eV	Si (N), Zn (P), Sn (N), Fe, (N) Undoped (N)
GaSb	Ø 2"	0.726 eV	Si (N), Zn (P), Undoped (N)
GaAs	Ø 4"	1.42 eV	Si (N), Zn (P), Cr (P), Te (N) Undoped (N)
GaP	Ø 3"	2.26 eV	Si (N), Undoped (N)
GaN	Ø 2"	3.2 eV	Si (N), Zn (P), Undoped (N)
AlSb	Ø 2"	1.58 eV	Si (N), Zn (P), Undoped (N)
AlAs	Ø 2"	2.45 eV	Si (N), Zn (P), Undoped (N)
AiN	Ø 3"	1.89 eV	Si (N), Zn (P), Undoped (N)
BAs	Ø 2"	2.049 eV	Si (N), Zn (P), Undoped (N)
BN	Ø 2"	6.4 eV	Si (N), Zn (P), Undoped (N)

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Wafers IV

SiC Wafers

SiC : Silicon carbide (SiC) has unique physical and electronic properties and shows many advantages :

- ✓ Current density can easily reach 5 or even 10 A/mm² (less than 1 A/mm² for silicon).
- ✓ Breakdown voltage (Volt/μm of epilayer) is typically in the 100 V/μm range for SiC, compared to 10 V/μm for silicon.
- ✓ A single SiC device will drive higher current and voltage in a reduced foot-print.
- ✓ SiC is very thermally conductive (Higher tha GaAs or Si). Where a Silicon device will have to be cooled down to not exceed 85°C, a similar SiC device will operate at 250°C with no degradation. This robustness to higher operation temperture will allow cost savings at system or module level where the cooling features (air, water, fans, heat sinks...) will be considerably reduced.
- ✓ Higher electron mobility of SiC also allows higher frequency operation in switching mode.
- ✓ Wide Energy Bandgap.
- ✓ High saturation drift velocity.

Codex International offers high quality single crystalline SiC wafer in semi-insulating and conductive form for various applications :

- ✓ Short wavelength opto-electronic, high temperature, radiation resistant applications. The high-power and high-frequency electronic devices made with SiC are superior to Si and GaAs based devices.
- ✓ Optoelectronic Devices.
- ✓ Diodes, power transistors, and high power microwave devices.
- ✓ Wireless communications and radar.



Ge Wafers

Due to its excellent crystallographic properties and unique electric properties Ge wafer is an elemental and popular semiconductor material. Ge wafers are mechanically strong with a low weight, widely used in sensors, space solar cells, solar cells (CPV), infrared optics, high brightness LEDs, and many other semiconductor applications.

Codex International offers low dislocation and epi-ready Ge wafers and electronics grade and IR grade.

Wafers IV	Max size	Resistivity	Conductivity
SiC	Ø 150mm	$\geq 1E7\Omega \cdot cm / 0.015\Omega \cdot cm - 0.028\Omega \cdot m$	N
Ge	Ø 300mm	$>50\Omega \cdot cm$	N

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Wafer SOI (Silicon On Insulator)

- ✓ Available for Diameter from 50.8mm to 200mm
- ✓ Direct Bonding
- ✓ Epi-Layer Transfer
- ✓ Oxygen Implantation

All our wafers are delivered packed in standard cassette with vacuum sealed in clean room environment.

