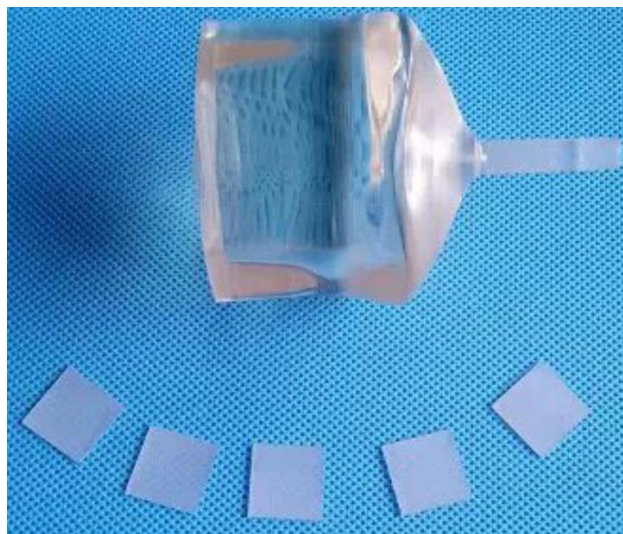CasCrysTech
中科瑞晶

Magnesium Aluminate (MgAl$_2$O$_4$)

Magnesium aluminate (MgAl$_2$O$_4$) can be used as the substrate substrate of III-V nitride device thin film, and is also widely used in acoustic wave and microwave devices and fast IC epitaxial substrates. In addition, it has a good lattice matching with epitaxial silicon thin layer. The self-doping of aluminum atoms in the epitaxial silicon thin layer is small, the thermal stability is good, and the expansion coefficient of silicon is relatively close, the hardness is small, the processing performance is better, etc., so it can be used as a high-quality insulating lining for ultra-high-speed large-scale integrated circuits One of the bottom materials. At present, we can provide twin-free, crystal-domain-free, and ultra-smooth high-quality substrate substrates with a maximum diameter of 2 inches (FWHM<50 arcsec, roughness Ra<0.5 nm).

PARAMETERS

Growth Method	Czochralski
Crystal Structure	Cubic
Lattice Constant	a=8.085Å
Melting Point	2130℃
Density	3.64 (g/cm^3)
Mohs Hardness	8 (mohs)
Color	White transparent
Thermal Expansion	7.45×10^{-6} /K
Dimension	10x3mm，10x5mm，10x10mm，15x15mm，20x15mm，20x20mm Φ1″，Φ2″,
Thickness	0.5mm，1.0mm
Polishing	One side or two sides
Orientation	<100>、<110>、<111>±0.5°
Crystal Plane Orientation Accuracy	±0.5°
Edge Orientation Accuracy	2°（Special requirements can reach within 1°）
Bevel Wafer	According to specific requirements, wafers with edge-oriented crystal planes inclined at a specific angle (inclination angle 1°-45°) can be processed.
Surface Roughness	Ra≤5Å（5×5μm）
Package	Class 100 clean bag, Class 1000 super clean room