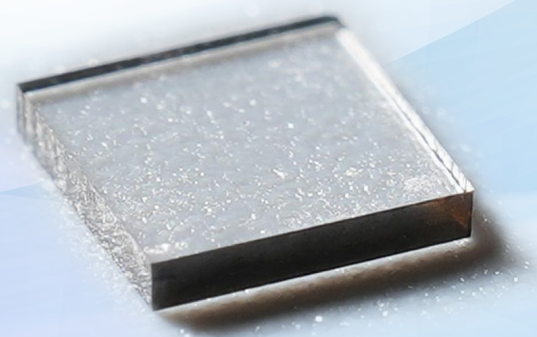


# High Purity Diamond

For wide-bandgap semiconductors, high-power electronics, and quantum computing.

**ViQium™ High Purity Diamonds** feature low fluorescence, ultra-high hardness, high thermal conductivity, thermal and radiation stability, chemical resistance, and broad optical transparency. Widely used in semiconductors and electronics, optical windows, and both single and shallow NV-center fabrication.



## Product Parameters

| Elements        | Concentration |
|-----------------|---------------|
| N               | < 50 ppb      |
| B               | < 1 ppb       |
| <sup>13</sup> C | 1.1%          |
| <sup>12</sup> C | 98.9%         |

Notes: 1. Nitrogen content measured by EPR.  
2. Boron content measured by SIMS.  
3. <sup>13</sup>C and <sup>12</sup>C abundances are at natural isotopic levels.

| Thermal Properties   | Values                                  |
|----------------------|-----------------------------------------|
| Thermal Conductivity | > 2000 Wm <sup>-1</sup> K <sup>-1</sup> |
| CTE (300 K)          | 1.0 ± 0.1 ppm · K <sup>-1</sup>         |
| CTE (1000 K)         | 4.4 ± 0.1 ppm · K <sup>-1</sup>         |

| Geometric Properties       | Values                    |
|----------------------------|---------------------------|
| Standard Size              | 3 mm × 3 mm & 2 mm × 2 mm |
| Standard Thickness         | 0.5 mm                    |
| Polished Surface Roughness | Ra < 5 nm                 |

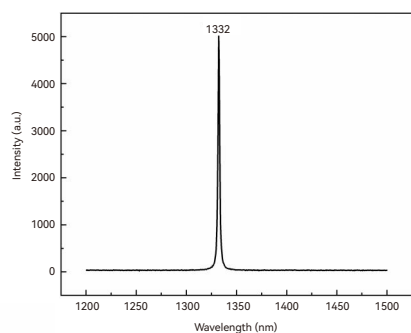


Fig 1. Raman spectrum of High Purity Diamond

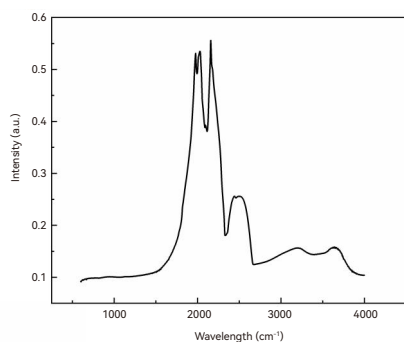


Fig 2. Infrared (IR) spectrum of High Purity Diamond

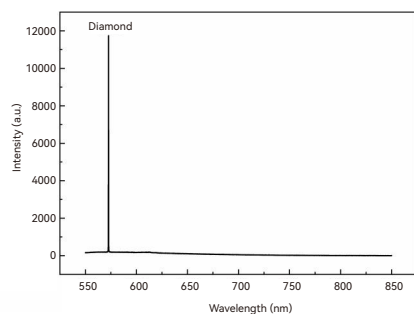


Fig 3. Fluorescence spectrum of High Purity Diamond



Fig 4. Atomic force microscopy (AFM) image of High Purity Diamond

## ViQium™ High Purity Diamond

| No. | Product Code | Dimensions (mm) | Crystal Orientation |
|-----|--------------|-----------------|---------------------|
| 1   | HPD100F12    | 2 × 2 × 0.5     | <100>               |
| 2   | HPD100F13    | 3 × 3 × 0.5     | <100>               |
| 3   | HPD110F12    | 2 × 2 × 0.5     | <110>               |
| 4   | HPD110F13    | 3 × 3 × 0.5     | <110>               |
| 5   | HPD111F12    | 2 × 2 × 0.5     | <111>               |
| 6   | HPD111F13    | 3 × 3 × 0.5     | <111>               |

### Address

No. 109 Yuanmei Road, Minhang District, Shanghai, China

### Website

[www.viqiumtech.com](http://www.viqiumtech.com)

### Email

[info@viqiumtech.com](mailto:info@viqiumtech.com)

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