



## YAG Crystal( $Y_3Al_5O_{12}$ ) Optics - *Un-doped Crystal for Optical Windows ♦ Optical Mirrors ♦ Optical Prisms ♦ Optical Wedges*

Undoped YAG Crystal is an excellent material for UV-IR optical windows, prisms, or laser cavity couplers, particularly for high temperature and high energy density environment use. The mechanical and chemical stability is comparable to sapphire crystal, but YAG is unique with non-birefringence and available with higher optical homogeneity and surface quality. Up to 3" YAG boule grown by CZ method, as-cut blocks, windows, prisms and mirrors are available from PHOTONIK.

### Main Features:

- Transmission in 250nm ~ 50,000nm, with no absorption in 2 ~ 3mm thickness;
- Extremely hard and durable;
- High thermal conductivity;
- High damage threshold;
- High refractive index and non-birefringence.

### Basic Properties:

|                          |   |
|--------------------------|---|
| Crystal structure        | Cubic   |
| Density                  | 4.5g/cm <sup>3</sup>                                |
| Transmission Range       | 250-5000nm  |
| Melting Point            | 1970 °C   |
| Specific Heat            | 0.59 W.s/g/K  |
| Thermal Conductivity     | 14 W/m/K  |
| Thermal Shock Resistance | 790 W/m   |
| Thermal Expansion        | 6.9x10 <sup>-6</sup> /K                             |
| dn/dt @ 633nm            | 7.3x10 <sup>-6</sup> /K -1                          |
| Mohs Hardness            | 8.5   |
| Refractive Index         | 1.8245 @ 800nm<br>1.8197 @1000nm,<br>1.8121 @1400nm |

### Main Specifications of YAG Windows, Prisms and Mirrors:

|                      |                        |
|----------------------|------------------------|
| Orientation          | [111] ± 5°             |
| Diameter             | ± 0.1mm                |
| Thickness            | ± 0.2mm                |
| Flatness             | < λ/10 @633nm          |
| Parallelism          | < 30"                  |
| Perpendicularity     | better than 5'         |
| Scratch-Dig          | 10 - 5 per MIL-O-1383A |
| Wavefront Distortion | < λ/4 per inch @1064nm |

*For request on high precision optical windows, prisms or mirrors, user may specify AR and HR coating types.*

### Ordering Information:

Advise us of the applications or send us your recommended drawings for cost evaluation;

### Contact Information:

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