

Laser Crystals

NLO Crystals

Birefringent Crystals

AO and EO Crystals

Magneto-optical Crystal

**Scintillation Crystal**

## Nal(Tl)

### Introductions



NaI(Tl) crystal is a kind of scintillation crystal with good properties. It is grown by host material sodium iodide doped with appropriate percentage of thallium. Its emission maximum is 415nm, which is well matched to the sensitivity curve of photomultiplier tubes (PMTs) with alkali

photocathodes. The material has a very high luminescence efficiency and has good resolution ability to X-ray and  $\gamma$ -ray. Our products are applied to the safety inspection system of the 2008 Beijing Olympics and the 2010 Shanghai World Expo. According to the customer request and application condition, we can produce various NaI(Tl) crystal, which can meet different needs for such as high temperature crystals, ruggedized crystals.

### Basic Properties

| Items                               | Specification                        |
|-------------------------------------|--------------------------------------|
| Relative Light Output (%)           | 100                                  |
| Mohs Hardness                       | 2.1                                  |
| Cleavage Plane                      | (100)                                |
| Wavelength of Emission Maximum (nm) | 415                                  |
| Density (g/cm <sup>3</sup> )        | 3.67                                 |
| Hygroscopicity                      | Yes                                  |
| Melting Point(°C)                   | 651                                  |
| Thermal Expansion Coefficient       | $47.4 \times 10^{-6} \text{ K}^{-1}$ |
| Light Yield                         | $38 \times 10^3 \text{ Photons/MeV}$ |
| Primary Decay Constant(ns)          | 250                                  |
| Refractive Index                    | 1.85                                 |
| Afterglow                           | 0.3-0.5% @6mms                       |

NaI(Tl)

Crystal

NaI(Tl) 01

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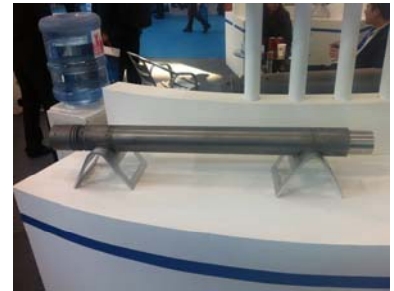
## Nal(Tl)

### Nal(Tl) crystal used in Oil Well logging

Nal(Tl) crystal can measuring the natural radioactivity of the earth. The gamma photons interact with Nal(Tl) crystal to produce photons of light scintillations. This information is used by geologists to determine the location and composition of minerals, and to look for oil and gas. Nal(Tl) crystal with high light yield, it is affected by temperature is relatively small. It has become the preferred material for oil well logging detector. We provided high-quality Nal(Tl) crystal in Daqing Oilfield, Dagang Oilfield, etc.

#### ① High temperature Nal(Tl) crystal

Operating Temperature 25°C to 175°C

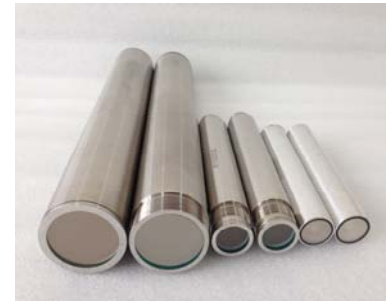


#### ② High temperature ruggedized Nal(Tl) crystal

Operating Temperature 25°C to 175°C

Vibration 20g, 20-1000Hz

Shock 400g@1ms



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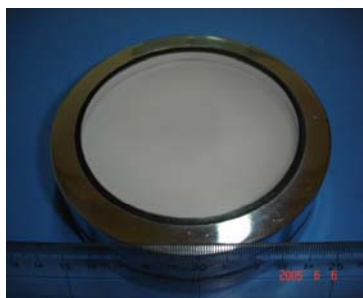
Magneto-optical Crystal

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**Nal(Tl) crystal used in environmental monitoring**

Now radioactive materials are routinely present in environments, the measurement of ionizing radiation is critical to ensure the safety and protection of workers and the general public from potential hazards. Nal(Tl) crystal can be used to monitor production, life, work environment field and so on.


**Nal(Tl) crystal used in nuclear medicine**

Nuclear Medicine is a medical specialty that uses safe, painless and cost-effective techniques to image the body and treat disease. Nal(Tl) medical detectors are widely used in  $\gamma$  camera, isotope therapy and other diagnostic devices.



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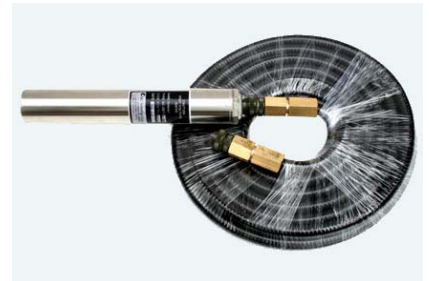
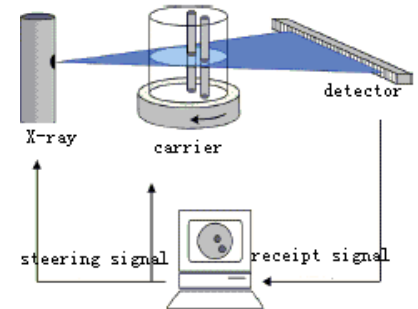
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**Nal(Tl)**

**Nal(Tl) crystal used in Industrial CT and safety inspection**

Nal(Tl) crystal used to inspect the rate of flow of molten steel ,thickness of the steel and defect inspection in metallurgical industry, also inspect concealed explosives.



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