

# Thallium doped Sodium Iodide – NaI(Tl)

## Radanite Group

We offer high quality CsI(Tl), CsI(Na), CsI(Pure), NaI(Tl) and GAGG(Ce) scintillation crystals of various shapes and sizes as well as pixelated arrays. We have full capability to cut, shape, polish and coat the crystals as well as couple with silicone photodiode in order to meet your specific requirements.

## Contact Details

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NaI(Tl) - Thallium doped Sodium Iodide is the most commonly used scintillation crystal. NaI(Tl) is one of the brightest scintillators available surpassed only by our GAGG(Ce) scintillator. NaI(Tl) has a high level of optical output and marginal self-absorption of scintillation light.

NaI(Tl) is highly hygroscopic. Contact with water and humidity should be avoided and encapsulation (container) is required.

### NaI(Tl) scintillators have the following features:

- High light output
- Good density
- Marginal self-absorption of scintillation light
- Have an optical output largely independent of temperature
- Good radiation hardness
- Optical output well matched to most commonly used PMTs

### Typical applications for NaI(Tl) scintillators include:

- Nuclear spectroscopy
- Nuclear medicine - SPECT, X-ray, CT, PET and RIA
- Nuclear physics
- High energy physics
- Environmental monitoring
- Security – cargo scanning, isotope identification, x-ray scanners
- Dose rate monitors

### Properties:

Density (g/cm <sup>3</sup> )	3.67
Effective atomic number	56
Maximum emission wavelength (nm)	415
Radiation length (cm)	2.6
Light yield (photons/KeV)	38
Decay time (ns)	250
Thermal expansion coefficient (°C <sup>-1</sup> )	4.74x10 <sup>-6</sup>
Melting Point (°K)	924
Hardness (Mohs)	2
Scintillation afterglow (100ms)	TBA
Hygroscopic	Yes

