

# AMCRYS

## Техническое описание (eng.)

## СЦИНТИЛЛЯЦИОННЫЕ кристаллы

NaI(Tl)

**По вопросам продаж и поддержки обращайтесь:**

|                             |                            |                                 |                                |                          |
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| Владивосток (423)249-28-31  | Киров (8332)68-02-04       | Новосибирск (383)227-86-73      | Севастополь (8692)22-31-93     | Уфа (347)229-48-12       |
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## Thallium Doped Sodium Iodide NaI(Tl)

Single crystal sodium iodide doped with thallium ions is a classic scintillator for detecting gamma-radiation of intermediate and low energies. High luminescence efficiency, wide variety of sizes and geometries and relatively low-cost make NaI(Tl) the most widely used scintillator.

NaI(Tl) scintillators have the greatest light output among all the scintillators and a convenient emission range coinciding with a maximum efficiency of photomultipliers with alkali photocathodes. NaI(Tl) crystals have radiation hardness that is quite satisfactory for many applications. They can be used under  $\gamma$ -radiation with flux density of up to  $10^5$  photons/(s\*cm<sup>2</sup>) without any noticeable variation of their characteristics.

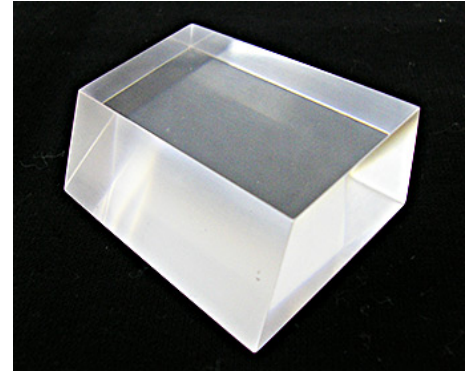
A serious drawback of NaI(Tl) scintillators is their high hygroscopicity, due to which these crystals must be placed into hermetically sealed housing (container).

Wide application of NaI(Tl) crystals is mainly due to relative simplicity of using and low cost of crystals. Because of favorable combination of physical properties, NaI(Tl) scintillators are widely used in different detecting systems in radiation medicine, in apparatus for monitoring of radionuclides, in nuclear physics, high energy physics, etc.

### ***NaI(Tl) Polycrystalline Scintillators***

Alongside NaI(Tl) single crystals, Amcryst produces pressed polycrystalline scintillators which have higher temperature and mechanical stability at the same light yield. NaI(Tl) polycrystals are used in outer space studies, for gamma-ray logging in gas and oil industry, in radiation environmental monitoring, etc. Polycrystals can be easily shaped into any desired form and any size. A long NaI(Tl) polycrystal can be used as a position-sensitive detector with good spectrometric characteristics.

NaI(Tl) polycrystal plates are used for production of imaging detectors for tomographic medical imaging systems.



### **Additional information and features:**

- high light output
- single crystal or polycrystalline form
- good matching of the radioluminescence spectrum to the maximum sensitivity region of the commonly used PMT and
- fast response
- high mechanical hardness characteristics (only for the polycrystalline)

## Markets and applications

Nuclear medicine – SPECT, x-ray CT and PET  
Environmental monitoring – gamma-radiation monitoring  
Security control – passive portal monitors, x-ray scanning systems, radiation isotope identification devices  
Geophysics – well-logging, aerial survey  
Industrial – health physics, neutron activation analysis, non-destructive testing (defectoscopy) HEP and Astrophysics

## Available dimensions

Cylindrical form: up to 300 mm in diameter  
Rectangular form: up to 500 mm long  
Plates (only for the NaI(Tl) polycrystals): 593 mm long x 470 mm wide, and up to 450 mm in diameter

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