



CsI, CsI(Tl), CsI(Na)

Introduction

Cesium Iodide is a material with high γ -ray stopping power due to its relative high density and atomic number. For scintillation counting, it is used either in its undoped form or doped with sodium or thallium. CsI is resistant to thermal and mechanical shock. Compared to NaI(Tl), it is relatively soft and plastic, and does not cleave. Because it has no cleavage plane, it is quite rugged. So it is well suited for well logging, space research or other applications where severe shock conditions are encountered.

CsI(pure) has an emission maximum at 315 nm with an intensity much smaller than either of the activated types of this material. The 315 nm emission is characterized by a relatively short decay time of 16 ns, thus the material can be used for fast timing applications.

CsI(Tl) is one of the brightest scintillator. The maximum of the broad emission situated at 550nm is well suited for photodiode readout. CsI(Tl) is slightly hygroscopic with plastic mechanical properties. Combined with the relatively good radiation hardness properties, CsI(Tl) is well suited for High Energy Physics.

CsI(Na) has a wavelength of emission peak at 420nm and is well matched to the photocathode sensitivity of bialkali photomultiplier and has a light output yielding to 85% of NaI(Tl). Compared to NaI(Tl), it is a relatively soft and plastic material without cleavage plane which makes the material interesting where severe environmental conditions are encountered

Main Advantages

- High γ -ray stopping power
- High density and atomic number

Main Properties

Properties	CsI	CsI(Tl)	CsI(Na)
Density [g/cm ³]	4.51	4.51	4.51
Melting Point [°C]	721	721	721
Thermal Expansion Coefficient[C ⁻¹]	54 x 10 ⁻⁶	54 x 10 ⁻⁶	54 x 10 ⁻⁶
Cleavage Plane	none	none	none
Hardness (Mohs)	2	2	2
Hygroscopic	slightly	slightly	yes
Wavelength of Emission Max. [nm]	315	550	420
Lower Wavelength Cutoff[nm]	260	320	300
Refractive Index @Emission Max	1.95	1.79	1.84
Primary Decay Time[ns]	16	1000	630
Light Yield [photons/keV γ]	2	54	41
Photoelectron Yield[% of NaI(Tl)] (for γ -rays)	4-6	45	85

Notes:

CsI crystal is slightly hygroscopic, please use or keep it in dry environment.

公司简介 INTRODUCTION



CASTECH INC.

(CASTECH) was founded by Fujian Institute of Research on the Structure of Matter, Chinese Academy of Science in 1988. Thanks to long term interactive partnership with the leaders in laser system manufacturing industry and ongoing efforts of our employees, we have established the largest mass production lines in the world for LBO, BBO, Nd:YVO₄ and TGG crystals, and implemented a complete quality control system for our products.

CASTECH is now a worldwide leading supplier of nonlinear optical crystals, laser crystals, precision optics, and a variety of laser components. In CASTECH, there are Flux/Czochralski/Water Solution/Bridgman Crystal Growth production lines, Crystal Orientation and Dicing workshop, Optical Polishing workshop and Optical Coating workshop with IBS, IAD, MS and EB coating technique. Our commitments are backed by our huge manufacturing capacity.

CASTECH's quality system is IATF 16949:2016 and ISO 9001:2015 certified. We have established a complete system for outgoing parts inspection. Our optical testing equipments include Zygo Interferometers, Agilent Cary 7000, Perkin-Elmer Lambda 950, Nikon Microscope, Photo-Thermal Common-Path Interferometers, Zygo Newview 8300, Taylor Hobson LupoSan 260, Extinction Ratio Measurement and Ellipsometers. These equipments along with many others, ensure that we comply with all specifications for our products.

Today, over 60% of CASTECH's products are exported to USA, Japan, Europe and other Asia Market. We have established a global sales network. We have set up our agencies and distributors in the main industrial countries and districts.

Our mission is to deliver the best products and solutions to our customers in photonics industry, and help them to realize their full potential in business. Here at CASTECH, we value comity, integrity, honesty, and innovation.