GPS

Key Scintillator Materials for Novel Radiation Detectors

Features

- ✓ **Highest light yield in oxide scintillators**
- ✓ **Excellent temperature characteristics**
- ✓ **No hygroscopicity**
- ✓ **No self-radiation**

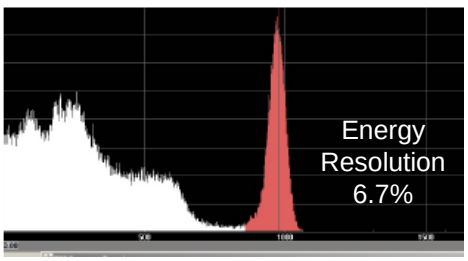
Applications

- ✓ **SPECT**
- ✓ **Homeland security**
- ✓ **Common radiation monitoring**

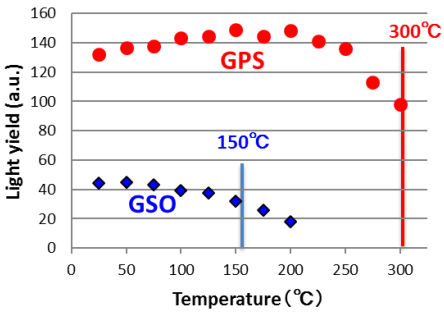
GPS Gadolinium pyro silicate ($Ce:Gd_2Si_2O_7$)

Properties

Energy spectrum



Temperature response



Comparison of Typical Scintillators

	GPS	GSO	La-GPS	$LaBr_3$	NaI:Tl
Light yield (NaI=100)	~140	20	~120	160	100
Decay time (ns)	50-130	30-60	50–70	25-30	230
DE/E (^{137}Cs, %)	5 - 7	8-10	5 - 7	3-4	7
Density (g/cm^3)	5.5	6.7	~5.3	5.08	3.7
Hygroscopicity	No	No	No	Yes	Yes
Self-radiation	No	No	Little	Yes	No
Temperature quench	300℃	150℃	>150℃	-	-

OXIDE **Oxide Corporation**

1747-1 Makihara, Mukawa, Hokuto, Yamanashi 408-0302 JAPAN
Tel: +81-551-26-0022, Fax: +81-551-26-0033
Sales@opt-oxide.com, https://www.opt-oxide.com

Sales Contact in North America: Mr. Toshinori Takeyama, Marubeni America Corporation.
Tel: 914-428-6317, Takeyama-T@marubeni.com

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