

# Glass Scintillators

## Lithium glass scintillators for neutron detection

Customisable to your requirements, the excellent sensitivity of our lithium based glass scintillators allows for reliable, high sensitivity neutron detection.



### applications

As a global lithium-6 based glass manufacturer, we draw on decades of experience in providing robust neutron detection scintillators.

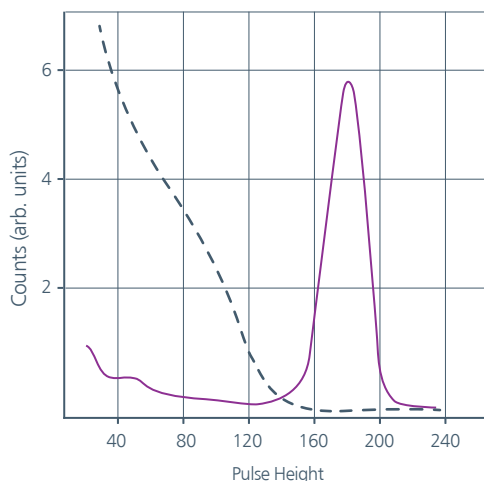
Characteristics such as being robust, chemically inert and able to perform at extremes of temperature and pressure, make our glass scintillators the industry standard in the detection of neutrons in oil well logging.

### products

Type	Isotopic Ratio	Total Lithium
GS1	Natural	2.4%
GS2	95% <sup>6</sup> Li	2.4%
GS3	99.99% <sup>7</sup> Li	2.4%
GS10	Natural	6.6%
GS20™	95% <sup>6</sup> Li	6.6%
GS30	99.99% <sup>7</sup> Li	6.6%
KG1	Natural	7.5%
KG2	95% <sup>6</sup> Li	7.5%
KG3	99.99% <sup>7</sup> Li	7.5%

### features

- Oil well logging applications
- Customisable geometries
- High sensitivity
- Robust
- High performance
- Suitable for harsh environments
- Emission matched to PMT's



**Figure 1.**  
Pulse Height Spectra  
(1mm thick GS20 <sup>6</sup>Li Glass)

## customised solutions

The scintillator can be manufactured in many geometries such as discs, rectangles and cylinders. The physical makeup of the scintillator is chosen to fit your needs and application.

As an established authority in the field of lithium based scintillators, we have developed manufacturing and finishing techniques to ensure consistent quality and reliability.

Tolerances can be customised to meet your requirements.

We are also able to offer a number of finish options on one or more surfaces of the scintillator.

## options

- 1 Natural Lithium Glass
- 2 Enriched Lithium 6Li Glasses
- 3 Depleted Lithium 6Li Glasses

## forms

- Discs
- Rectangles
- Cylinders
- Powder

## specification

Properties	GS1/GS2/GS3	GS10/GS20™/GS30	KG1/KG2/KG3
Density [g/cm <sup>3</sup> ]	2.64	2.50	2.42
Coefficient of linear expansion/ °C	7.0 x 10 <sup>-6</sup>	9.23 x 10 <sup>-6</sup>	100 x 10 <sup>-6</sup>
Light output relative to anthracene*	22-34%	20-30%	20%
Decay times <sup>†</sup> , neutron excitation, ns	none	18, 57 & 98	18, 62 & 93
Decay times <sup>†</sup> , alpha excitation, ns	20, 48 & 88	16, 49 & 78	15, 45 & 56
Decay times <sup>†</sup> , beta excitation, ns	19, 57 & 103	20, 58 & 105	17, 51 & 96
Wavelength of maximum emission	395	395	395
Refractive index at maximum emission	1.58	1.55	1.57
Resolution on the thermal neutron "peak" obtained with moderated Po/Be neutrons	13~22%	15~28%	20~30%
Peak/Trough ratio of above "peak" (range) for thermal neutrons	15:1~40:1	10:1~40:1	10:1~20:1

\* Determined by thickness, increasing with decreasing thickness down to approximately 2mm.

† Fast component, slow component and 90-10% respectively.

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