SCIONIX

Compton Suppression Shields

BGO or NaI(Tl) anti-Compton shields for HPGe detectors

Scintillation detectors that surround an HPGe detector and give a veto signal when a gamma photon is Compton-scattered out of the germanium crystal. This lowers the Compton background and with it the detection limit. BGO is used for nuclear spectroscopy at high energies, low-background NaI(Tl) for low-level counting of e.g. environmental samples.



Scintillator

BGO for nuclear spectroscopy; low-background NaI(Tl) for low-level counting [1]

Specifications

Principle	The scintillator surrounds the HPGe crystal; coincident signals give a veto that blocks the Compton event	[1]
Scintillator	BGO for nuclear spectroscopy; low-background NaI(Tl) for low-level counting	[1]
Lowest energy	The shield should detect gamma rays down to 15 keV for optimum suppression	[1]
Intrinsic background	BGO has an intrinsic gamma background of the order of 1 cps/cm³ and is therefore not used for low-level counting	[1]
Use	Nuclear spectroscopy (up to 8–10 MeV, approx. 30 kHz) and low-level counting of environmental samples (at most 3 MeV)	[1]
Detector option	Back catcher, back plug, tapered nose cones and lead or tungsten collimators	[1]
Example HPGe sizes	BGO shields around HPGe detectors of 83, 78 and 96 mm diameter	[2]

Sources

[1] **Compton suppression spectrometry – application note**
Scionix · datasheet · p. 1; pp. 2–3; p. 3 · checked 2026-11-26
https://scionix.nl/wp-content/uploads/2017/07/Compton-suppression-shields.pdf

[2] **Examples of standard detector configurations**
Scionix · product-page · Specials · checked 2026-11-26
https://scionix.nl/standard/

Every value is taken from the manufacturer's own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer's published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.