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MATERIALS ANALYSIS DIVISION

(/)

USA - English ⌄

FastSDD X-Ray Detectors for XRF/EDS

FAST SDD® Ultra High Performance Silicon Drift Detector (/products/x-ray-detectors/fastsdd-x-ray-detectors-for-xrf-eds/fastsdd-silicon-drift-detector)
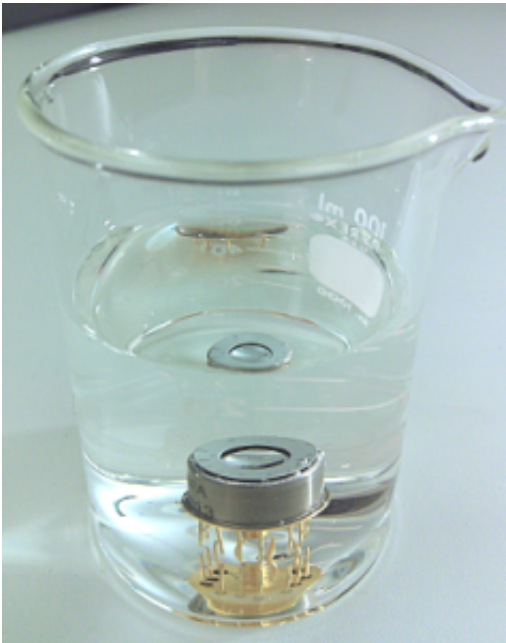
Patented C-Series Low Energy X-Ray Windows (/products/x-ray-detectors/fastsdd-x-ray-detectors-for-xrf-eds/c-series-low-energy-x-ray-windows)

EDS (SEM) Applications FAST SDD® and C2 Window (/products/x-ray-detectors/fastsdd-x-ray-detectors-for-xrf-eds/eds-sem-applications-with-c2-window)

Patented C-Series Low Energy X-Ray Windows

Amptek Patented "C-Series" X-ray windows utilize silicon nitride (Si3N4) with an aluminum coating to extend the low energy response of our silicon drift detectors (SDDs) down to boron (B); they are available exclusively with our FastSDD®.

Amptek provided an alternative to liquid nitrogen when it introduced the first thermoelectrically cooled detector. Now with the Patented "C-Series," we offer an alternative to the Beryllium (Be) window for general XRF analysis, and superior performance as compared to polymer windows for soft X-ray analysis.
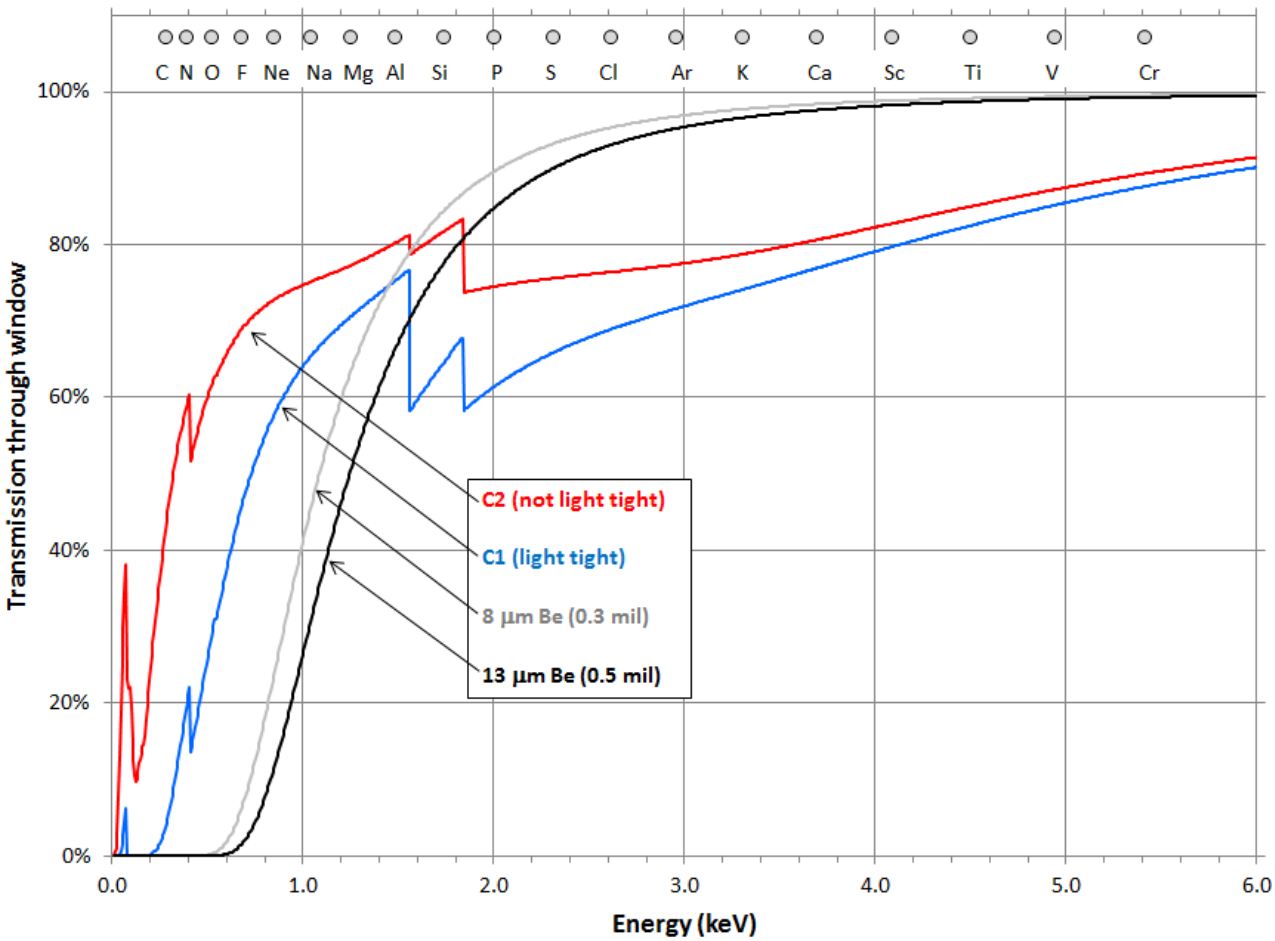
Unlike Polymer Windows, the Patented C-Series Windows are Impermeable to moisture
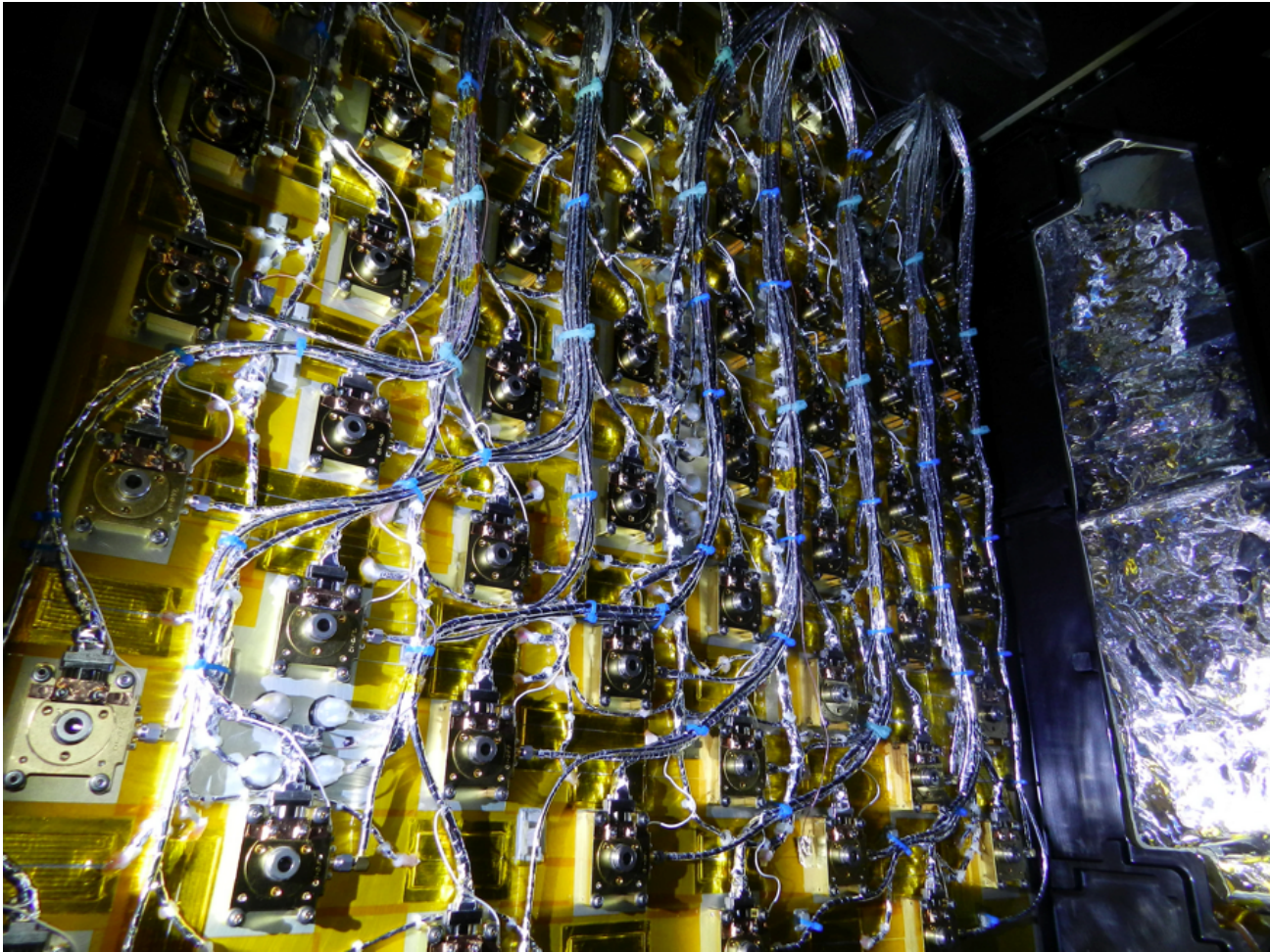
Applications

C1 Windows: Laboratory, benchtop and handheld instruments. This window is light-tight so it can be used in normal ambient room light.

C2 Windows: Vacuum applications and EDS (EDX) in scanning electron microscopes (SEMs). The C2 window has much better efficiency at the lowest energies but is not light-tight and therefore must be used in dark environments.

Amptek low energy Patented "C-Series" X-ray windows

A view of the NICER X-ray Timing Instrument showing Amptek FAST SDDs® with C2 windows mounted the focal plane, before light shield assembly. Credits: NASA/Keith Gendreau

Transmission for Low Z Elements   **+**

Specifications   **-**

	C1	C2
Thickness (Si3N4)	150 nm	40 nm
Aluminum Coating (Grounded)	250 nm	30 nm
Window Diameter	6.3 mm	5 mm
Window Area	30 mm²	20 mm²
Grid Type	Hexagonal Si, 15 µm thick	
Open Area Grid	80%	80%
Helium Leak Rate	<1 x 10^{-10} mbar l/s	Do not put the C2 window into He purge !
Operating Temperature	-55°C to +150°C (0 bar pressure differential)	
	-40°C to +85°C (1 bar front pressure differential)	
Pressure Testing for C1 and C2 Windows:	1.6 bar front pressure differential for 10 seconds	
	10 cycles of 1 second duration with 1.6 bar front differential pressure	

Amptek Patented C Series Windows Frequently Asked Questions (FAQ)

What are the advantages of the Patented C-Series windows?   **+**

Are there any disadvantages to the Patented C-Series windows?   **+**

Are the Patented C series windows strong enough to hold vacuum? +

Can the Patented C-Series windows be used in Helium (He) purged environments? +

Can the Patented C-Series windows be used for high energies as well as low energies? +

For what applications do you recommend the Patented C-Series windows? +

How accurate are the published attenuation curves? +

Performance Gallery +

PRODUCTS

X-Ray Detectors (/products/x-ray-detectors)

X-Ray Sources (/products/x-ray-sources)

Digital Pulse Processors (/products/digital-pulse-processors)

Gamma Ray Products (/products/gamma-ray-products)

Multichannel Analyzers (MCA) (/products/multichannel-analyzers)

EXP-2 Complete XRF Experimenter's Kit (/products/exp-2-complete-experimenters-kit)

Analytical Software (/products/analytical-software)

Charge Sensitive Preamplifiers (/products/charge-sensitive-preamplifiers)

SOFTWARE

DP5 Digital Pulse Processor Based Software (/software/dp5-digital-pulse-processor-software)

Mini-X2 X-Ray Tube Software (/software/mini-x2-x-ray-tube-software-2)

Analytical Software (/software/analytical-software)

Legacy Software Download Page (/software/legacy-software-downloads)

RESOURCES

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Detector & Window Development (/resources/detector-window-development)

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