



Passing IEC 61331-1:2014, DIN 6857-1 and ASTM F2547-06 at the lowest weight.

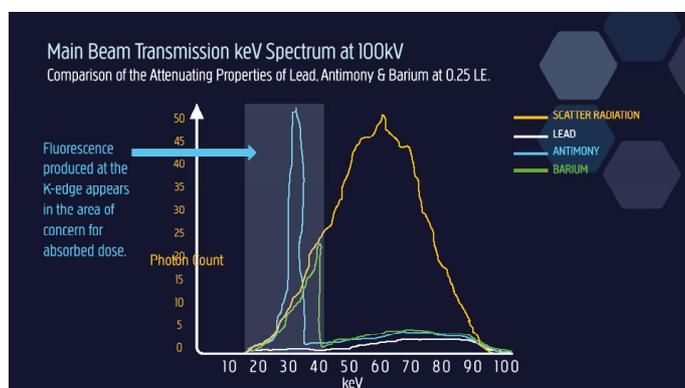
EDGE BILAYER, is a unique methodology that is the single biggest advancement in flexible radiation protection materials for medical environments, for more than a generation.

The technical advantages of the bilayer approach in terms of safety, weight and comfort, enable protective aprons, skirts and accessories to provide up to 20% reduction in absorbed dose than competitors' Lead composite materials and 40% better performance than Lead-free alternatives at comparable LE.*

EDGE BILAYER: Conquering the K-Edge

Edge Bilayer takes advantage of the physics associated with using individual layers of specific materials to provide the maximum attenuation by eliminating the scatter and fluorescence associated with the low atomic weight metals typically used in lead-free or low-Lead composites.

All lead free materials use a combination of heavy elements and always utilise an element named antimony which exhibits similar attenuation characteristics as lead, making it a good choice for an alternative, lightweight alternative for x-ray protection apparel.



However, unlike lead, antimony has a k-edge at the lower energy levels (fig1.) The presence of the K-Edge effectively allows the transmission of photons through the protective material at these lower energy levels. The concern, is that this energy is likely to be absorbed by the operator.

In the past, the relevant standards have always assessed radiation protective materials with narrow beam spectroscopy between a range of 80-150 KeV. The new IEC 61331-1:2014 standard, looks at a materials effectiveness at lower energy levels using broad beam spectroscopy.

Edge Bilayer is the first Lead-free and low-Lead material specifically designed to provide increased protection against scatter radiation and absorbed dose.

NEW TO IEC 61331-3:2014

Section "5.3 Materials" outlines key changes affecting manufacturers of protective garments, including:

- The Lead Equivalence (LE) of heavy-duty protective aprons shall not be less than 0.35mm Pb for the front section, and not less than 0.25mm Pb for the other parts.
- The LE of light-duty aprons shall not be less than 0.25mm Pb.
- The LE of thyroid collars shall not be less than 0.35mm Pb.



No other Lead-free or low-Lead material passes IEC 61331-1:2014, DIN 6857-1 and ASTM F2547-06 at a lower weight.

INNOVATION CONQUERS THE K-EDGE

There's a problem with traditional Lead-free and Lead-composite products containing low atomic weight metals, either exclusively or in a mixed metal composite. Simply put, they cannot match the performance of traditional Lead products, due to the K-edge effect and resulting fluorescence at key levels of keV. Testing reveals that these materials can only pass previous standards when tested between 80kV and 100kV using narrow beam geometry.

The result? Increased levels of absorbed dose received by the skin and organs that delivers a real, lasting and career-limiting impact on medical professionals.

Edge Bilayer is designed to and for new standards. Superior in concept, design and performance, the material delivers unparalleled comfort and flexibility. Edge Bilayer is the most complete and advanced form of radiation protection ever made.

A Matter of Weight - How does Edge Bilayer Compare?

Material	Edge Bilayer - Lead			Edge Bilayer - Lead Free			WSR Lightweight Lead		
Lead Equivalence	0.25	0.35	0.5	0.25	0.35	0.5	0.25	0.35	0.5
Target Weight Kg/M²	2.9	4.06	5.8	2.68	3.75	5.36	3.3	4.6	6.6

20% GREATER PROTECTION AGAINST ABSORBED DOSE WHEN COMPARED TO STANDARD LEAD PRODUCTS.

40% GREATER PROTECTION AGAINST ABSORBED DOSE WHEN COMPARED TO LEAD-FREE, OR LOW-LEAD COMPOSITES.

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