

CORE MATERIAL

CORE MATERIAL AND PHILOSOPHY

Infab offers our customers the best core material choices in the industry. Our Smart Armor core guarantee is unlike anything else in the industry, backing our Lead, Lead-Free Composite, Greenlite Lead-Free and KIARMOR with the only warranty against stiffening, cracking and crumbling.

Protection against scatter radiation is critical and that's why we have developed our KIARMOR core material. KIARMOR is the only core material able to pass all three major recognized testing authorities: ASTM, IEC 61331-1 and DIN 6857-1. It is the only lead-free material to ever pass the DIN 6857-1 standard.

There are no shortcuts when it comes to proper protection so we take no shortcuts in testing our core materials. We believe in providing our customers with real results which is why we proudly display our KIARMOR testing on page 9 and Smart Armor testing on page 11.

Providing customers with the knowledge they need to make a core material choice is our mission and giving people the results they need is of the utmost importance at Infab.

CORE MATERIAL KEY TERMS

Attenuation

In physics, attenuation is the gradual loss in intensity of any kind of flux through a medium. For instance, X-rays are attenuated by lead and other powdered metals.

Lead Equivalency

The protection provided by lead/lead-free core materials compared to pure lead. The most commonly requested lead equivalency is .50 mm Pb. When tested at 80 kVp a .50 mm Pb equivalent apron will provide approximately 97% direct beam attenuation.

Scatter Radiation

Scatter Radiation is a type of secondary radiation that occurs when the useful beam intercepts any object, causing some x-rays to be scattered.. Most of a technologist's occupational exposure comes from scatter radiation; therefore using safety measures against scatter radiation will effectively lower a technologists occupational exposure.

TESTING AUTHORITIES

There are three test procedures for radiation protection material that are universally recognized. ASTM which is widely used in the United States, IEC 61331-1 which is widely used throughout the rest of the world and DIN 6857-1 which is the only standard allowed in Germany and the toughest of them all to meet or exceed. Infab is the only manufacturer to have a lead-free core material able to pass all 3 standards, KIARMOR.



SMART ARMOR



KI
KIARMOR™



BI-LAYER PROTECTION AGAINST SCATTER RADIATION & ABSORBED DOSE

KIARMOR is an all new innovation in radiation protection core material, the combination of two powerful radiation blocking materials into a single homogeneous sheet.

- The lightest and most flexible radiation protection material available
- Provides 20% greater protection against absorbed dose when compared to Standard Lead products
- Provides 40% greater protection against absorbed dose when compared to Lead-free, or low-Lead composites

LIGHT, FLEXIBLE AND PROTECTIVE

Our KIARMOR core material is the most flexible, lightest weight and most importantly the most protective apron in the industry. Through countless hours of development we have produced a core material that protects not only in the direct beam but more importantly against dangerous scatter radiation.

Scatter radiation is the dangerous stuff, it's the lower energy radiation and it doesn't pass through your body, it's absorbed into it.

BI-LAYER TECHNOLOGY

Sb	Antimony	52 (Low atomic weight element)
Bi	Bismuth	83 (High atomic weight element)

KIARMOR's unique design and production methodology creates a Bi-Layer material tested by KI GLOBAL in partnership with world-leading health, science and technology partners.

Kiarmor is made from one homogeneous layer of two distinct, Lead-free materials and is certified by the National Physical Laboratory (NPL) for use by interventional radiologists, cardiologists and healthcare professionals working with radiation in hospitals worldwide.

PROTECTION AGAINST SCATTER RADIATION

Scatter Radiation is a type of secondary radiation that occurs when the useful beam intercepts any object, causing some x-rays to be scattered. During an x-ray or fluoroscopic exam the patient is the most significant source of scatter radiation. Most of a technologist's occupational exposure comes from scatter radiation; therefore using safety measures against scatter radiation will effectively lower a technologist's occupational exposure.

Why then is every single test for "lead equivalency" and radiation protection performed under the direct beam and not just the regular direct beam, but the narrow direct beam that has NOTHING to do with real world conditions?

The answer is because that test is easy and inexpensive to perform.



ABSORBED DOSE

All X-Ray procedures expose people to a quantity of radiation. Absorbed dose describes the measure of ionizing radiation that remains in the body or organs.

A 0.25 mm Pb Apron allows approximately 10% penetration of source radiation (90% attenuation). At 0.5 mm Pb this becomes 3% (97% attenuation). The difference is five times - or 500%.

KIARMOR's ultra-lightweight, Lead-free composition lets medical personnel work longer, with the highest level of protection at a reduced apron weight.



THE ONLY LEAD-FREE CORE MATERIAL TO PASS ALL U.S. & INTERNATIONAL TESTING STANDARDS



DIN 6857-1



IEC 61331-1



ASTM

KIARMOR is the only lead-free material that passes all 3 universally recognized testing procedures: ASTM, IEC 61331-1, DIN 6857-1

KIARMOR TESTING RESULTS

KIARMOR ATTENUATION	
DIRECT BEAM	80 kVp
	100 kVp
	120 kVp
	130 kVp
WEIGHT	
5.3 lbs (2.40 kg)	

103M-M
Revolution Male Vest Apron Size Medium

SMART ARMOR

Smart Armor has been a staple for what Infab is all about. We started our Smart Armor core guarantee knowing full well we had the best core material available in the industry and we have kept that promise. Each core material in our Smart Armor line (Regular Lead, Lightweight Composite, Greenlite Lead Free) is the highest quality and is guaranteed not to crack, crumble or stiffen for a minimum of 10 years.



REGULAR LEAD (RL)

Composed of emulsion polymers, finely divided 100% pure lead metal particles, stabilizers and pigments.



LIGHTWEIGHT COMPOSITE (LW)

Composed of emulsion polymers, finely divided metal particles including lead, antimony, stabilizers and pigments.



GREENLITE LEAD-FREE (GL)

Composed of emulsion polymers, finely divided lead-free metal particles including antimony, stabilizers and pigments.

MANUFACTURING PROCESS

The unique manufacturing process involves a multi-layer construction that produces a homogenous sheet we call Smart Armor because of its superior protection capabilities and long lasting quality. This insures an even distribution of the specially graded pure metal particles within the vinyl matrix and therefore a consistent level of protection throughout the sheeting.

10 YEAR CORE GUARANTEE

Only Infab Guarantees Our Core Material Will Not Stiffen, Crack, or Crumble For a Minimum of 10 Years From Date of Purchase.

LATEST TECHNOLOGY




With over 30 years of research and development, Infab's core material is the choice of hospitals and physicians, worldwide.

SMART ARMOR

TESTING RESULTS

INFAB SMART ARMOR™ ATTENUATION

ONLY Infab Corporation has every batch of core material tested by a third party, independent Health Physics laboratory.

DIRECT BEAM		<div></div> <div>Regular Lead</div>	<div></div> <div>Lightweight Composite Lead</div>	<div></div> <div>Greenlite Lead-Free</div>
		98.2%	98.4%	98.8%
		96.0%	96.3%	96.7%
		95.1%	95.4%	94.1%
		92.0%	95.0%	93.5%
		APRON WEIGHT 7.2 lbs (3.266 kg)	APRON WEIGHT 6.35 lbs (2.880 kg)	APRON WEIGHT 6.35 lbs (2.880 kg)

All weights based on 103M-M Revolution Vest Male Medium

Attenuation
Health Physics Northwest independent attenuation testing results