



FIRST Malaysia Lead Apron Brand LEAD LIGHT APRON – LIGHT WEIGHT



LEAD LIGHT MATERIALS

The Lead Light is a kind of flexible and lighter lead protective products, which can be used to make all kinds of X-ray protection products such as protective apron, cap and screen barrier, etc.

Lead is the best radiation shielding material in the world. Having very evenly distribution of lead, the performance of the protection is perfect. Under the normal use, the lead equivalent will not attenuate. It is wearable X-ray protective materials, lead equivalent rubber sheet.

DEFAULT FABRIC USE:

Nylon 420D Oxford fabric 86T±2T 124g/m2 with single layer PU Coating 15g/m2 base



Comply with IEC61331:2014

related to CE Directive(s): R 2016/425 (Regulation on Personal Protective Equipment)



..... Why choosing us?



Affordable price



Tailor made to your satisfaction



Light weight



Trusted Malaysia Brand



Quality checked

Visit us and get latest update at www.malray.net



LEAD LIGHT SHIELDING LEAD EQUIVALENT

Lead Light apron is made of lead oxide and other composites dissolved in natural rubber, produce a homogeneous sheet that is excellent in radiation protection, flexible, long lasting and resistant to hardening. The special composites produce an protective apron that is lighter than those fabricated with last decade technology. Lead Light apron absorb up to 99% of scattered radiation that reaches protected object, and the stated lead equivalency are verified by facility with require test method comply with Standard IEC-EN 61331-01. The inner core material is certified to be in compliance, within an allowed +/-5% manufacturing tolerance (as mm Pb).

It is to take note that in general, lead Light aprons absorb more radiation energy than the lead-free apron due to the excellent attenuation capability of lead.

LEAD FREE APRON

We carry protective apron in lead-free model, to suffice customers that willing to pay more for lighter apparels. All lead-free material technologies are origin from United State and tested according to the IEC61331-2:2014 standards.

The stated lead equivalency protection of lead-free garments, are measured under direct beam conditions at 100 kV (beam HVL 7mm AL) using the required test method of Standard IEC-EN 61331-01. The inner core material is certified to be in compliance, within an allowed +/-7% manufacturing tolerance (as mm Pb). The actual amount of x-radiation transmitted through the garment will vary with lead equivalence, beam kV, beam filtration (HVL), and in absolute "exposure values" with distance from the beam/table and exposed time.

LEAD LIGHT OR LEAD FREE APRON?

Below is a comparison of Malray's lead light and lead free apron in various aspects, to help the user in determination of type of apron to be used.

Media	Benefits	Protection	Attenuation	Weight
LEAD LIGHT	Most Economical and Recyclable	Lead fibre and composites in natural rubber	0.5mm Pb Equiv. protection average 98% attenuation over 80, 100, 120 KVp	4.4 kg (Flexi Guard, Size L, 0.5mmPb front protection apron)
No Lead (Lead Free)	Lightest weight, lead free, environment friendly	Tungsten-Antimony	0.5mm Pb Equiv. protection average 96% attenuation over 80, 100, 120 KVp	4.2 kg (Flexi Guard, Size L, 0.5mmPb)

KEY FACTS

- Lead free apron is slightly lighter than lead light apron. Under the same lead equivalency and same cut, the different is from 5 - 15%
- Lead light apron offers better and consistent radiation shielding to the protected target under different tube voltages, compare to lead free apron.



Custom Apparel Quote Form

Eightfold Sdn Bhd

Custom Made Benefit: Custom made ensure best fit and comfort when wearing. On the other hand, it reduces overall weight of the apron by around 5 – 20%, which indirectly compensate the choice of lead free that cost double or triple the price! Please fill out the following form and submit for a pricing quote on all custom apparel. All custom sized apparel will include an additional fee for each item ordered. Custom sized apparel is non-refundable, non-returnable.

CUSTOM SIZE APPAREL

Please use the provided CAT numbers and pricing for each custom apparel item.

ACP1	RM 280 for custom aprons, vests and skirts
ACP2	RM 90 for custom apparel items (ex: Thyroid, Gonadal, Semi Guard)
ACP3	RM 90 for Embroidery single line up to 20 letters

Name: _____ Facility: _____ Date: _____

Apron CAT#: _____ Description: _____

Lead Type: _____ Lead Equivalent: _____ mmPb Fabric color: _____

EMBROIDERY LINE 1, UP TO 20-LETTERS: _____



Getting Accurate Measurements (all in cm)

GENDER: M / F **OVERALL HEIGHT:** _____cm

BUST/CHEST (B): _____
Circumference around the widest part of your chest.

WAIST / TUMMY (C): _____
Standard Apron: measure your waistline.
Skirt/Kilt: measure where you want the skirt/kilt top (may be higher than your regular waistline).

HIP (D): _____

LENGTH (A):
FRONT APRON or WRAP-ROUND: _____
Sternal notch to just above the knee.

VEST/TORSO (E): _____
Sternal Notch to desired length below your waist.

SKIRT/KILT (F): _____
Desired skirt/kilt top (may be above your regular waistline) to just above your knee.

Please submit this information with your order.

Embroidery Add-On Patch

This flexible option has your information embroidered onto a patch. Hook & Loop on the back of the patch and on the garment secure the patch in place



(Patch above pocket)





CLEANING AND CARE

Thank you for choosing MalRay for your radiation protection needs. X-ray aprons serve a very specific purpose, to protect and shield you from the potentially harmful effects of ionizing radiation. Shielding, one of the three concepts of basic radiation safety, should always be used when the use of time and distance principles are not possible.

Protective x-ray aprons constructed of lead or a non-lead equivalent are designed to protect the radiosensitive areas of the body when it is necessary for the healthcare worker to be near the source of radiation. Typically, x-ray aprons will offer protection from 0.25mm to 0.5 mm lead equivalency. In some instances, wrap-around x-ray aprons are required when medical personnel will have their backs exposed to the radiation source.

Lead rubber is a very flexible and durable lead shielding products however, it still requires proper care in order to maximize its use and produce best result in term of radiation safety.

The following are recommended actions for the care of X-ray protective apron:

1. Regular Inspect and check apron for defects, cracks, creases, and perforations

X-ray aprons should be evaluated every 12 months to determine if replacement is needed, depending on the amount of usage and general wear and tear. It is advisable to perform more frequent inspection once it have been used for more than 5 years. To ensure proper inspection procedure, it is recommended to send the lead apron to a qualified lab to perform annual inspection and safety validation.

2. Clean Regularly

X-ray Aprons should be cleaned daily or weekly (depend on usage) and deodorized by scrubbing with a soft bristle brush, using cold water and a mild detergent. Completely remove cleaning residue by thoroughly rinsing with clean, cold water.

- Never use products that contain bleach.
- Do not soak or submerge x-ray apron in water.
- Do not machine launder, autoclave or dry-clean.
- Once cleaning is complete, if possible, hang the apron on the designated apron wall rack to air dry.

3. Properly Store X-Ray Aprons

The x-ray apron manufacturer's recommendation regarding the proper handling and storage of the apron must be strictly observed. When not in use, x-ray aprons must be stored on hangers to prevent cracks in the protective lead. If possible, do not store the x-ray apron on a flat surface. Aprons should be hung by the shoulder or on an approved apron hanger. Aprons should never be folded or creased, to avoid damaging the lead lining or lead rubber. "Cracks in the lead lining can develop at the fold, reducing the useful life of the apron¹." Hook and loop fasteners must be secured properly to avoid snagging or tearing of fabric, always store apron with fasteners completely secured.

4. Dispose of Lead Aprons Properly

X-ray protective aprons that contain lead cannot be disposed of as municipal solid waste. Consequently, they must be disposed of as hazardous waste or recycled. The user may send it back to us or contact us for any further information on handling of disposal.

5. Sit While Wearing Your Apron

Unless the x-ray apron has been designed specifically for seated procedures, you will want to avoid sitting while wearing your apron. Cracks in the lead lining can develop while wearing the apron if seated. Also, you will want to avoid sitting on the apron for the same reason.

6. Expose Apron to Extreme Temperatures

The x-ray apron shall be avoid for being exposed to extreme hot or cold temperatures or to direct sunlight.

7. Lean Against Pointed Objects or Sharp Edges

Avoid storing sharp objects in the pockets. X-ray aprons can become damaged while leaning up against sharp or pointed objects, creating perforations in the lead lining and reducing the attenuating qualities of the lead.

8. Store Aprons Over Chair Backs or Equipment

Laying aprons over a chair back or piece of equipment can create creases in the lead lining and can reduce the useful life of the apron.



WRAP ROUND GUARD TYPE

Wrap around, full-body protection coat-style garment. Distributes weight between shoulders and hips. 0.5mmPb equivalency protection front, 0.25mm back. Buckle closure. Generous armholes for EZ-fit.

Suitable for use in medical imaging / diagnostic department that poses risk of frequent exposure to X-ray environment.

CAT#: ELWA

Material : Lead light / Lead Free
Lead Equiv. : Back 0.25 / Front 0.5

Size:

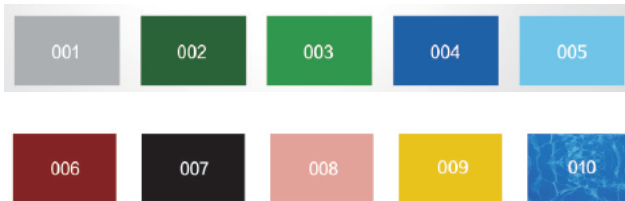
- S 850 x 550mm
- M 900 x 550mm
- L 1000 x 600mm
- XL 1100 x 675mm
- 2XL 1200 x 700mm

*The size is for reference purpose only and the actual garment size depends on the final order and size adjustment.



the belt for protective clothing

Fabric color: (Default color 004)



Vest n Skirt Guard

CAT#: ELVG, ELKG

Full front overlap design saves weight. Distributes weight between shoulders and hips. 0.5mm Pb equivalency protection front, 0.25mm back. Hook and Loop closure is fast and easy.

Lead equiv: Back 0.25 / Front 0.5

Vest n Skirt Guard (mm)			
Size	Front Width	Length	Circumference
P	500	500	<915
S	530	510	<1015
M	550	530	<1120
L	610	560	<1220
X	660	580	<1320
2X	710	610	<1430

*The size is for reference purpose only and the actual garment size depends on the final order and size adjustment.





MAX GUARD

Overlap offers full-body protection. Distributes weight between shoulders and hips. 0.5mmPb equivalency protection front, 0.25mm back. Hook & loop closure. Generous armholes for EZ-fit.

Suitable for use in medical imaging / diagnostic department that poses risk of frequent exposure to X-ray environment.

CAT#: ELWA

Material : Lead Light / Lead Free
Lead Equiv. : Back 0.25 / Front 0.35 / 0.5



Lead Light Apron

Wrap Round Apron (mm)			
Size	Front Width	Length	Circumference
P	500	780	<915
S	530	820	<1015
M	550	850	<1120
L	610	960	<1220
X	660	1000	<1320
2X	710	1000	<1430

*The size is for reference purpose only and the actual garment size depends on the final order and size adjustment.

Fabric color: (Default color 004)



Lead Free Apron – Front Protection



LAP GUARD

Hook and Loop Half Apronette
Easy-to-use hook and loop.
Excellent protection for patient and staff.

CAT# : ELLG
Material : Lead Light / Lead Free
Lead equiv : 0.35/0.5mmPb

Size	Width x Length (mm)	Belt length (mm)
P	250 (W) x 250 (L)	800 (1")
S	300 (W) x 300 (L)	900 (1")
M	400 (W) x 400 (L)	1050 (1")
L	600 (W) x 500 (L)	1200 (2")
XL	650 (W) x 600 (L)	1400 (2")





EZ GUARD



All Purpose Front Protection Apron. EZ-On / EZ-Off. Available with an easy criss-cross back and Hook and Loop closure on the front. Perfect for every day imaging protection. Double-fold binding for strength and tear resistance.

CAT#: ELEA

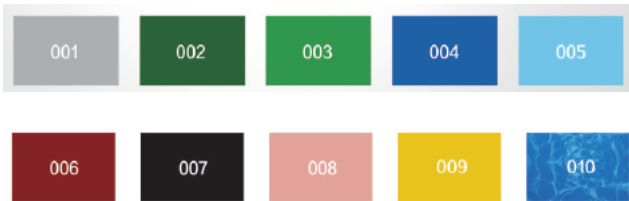
Material : Lead Light / Lead Free

Lead Equiv. : 0.35 / 0.5

Front Protection Apron (mm)			
Size	Front Width	Length	Circumference
P	500	780	<915
S	530	820	<1015
M	550	850	<1120
L	610	960	<1220
X	660	1000	<1320
2X	710	1000	<1430

- The size is approximate only and the actual apparel size may differ up to 5% from listed.

Fabric color: (Default color 004)



Breast Guard

The breast shield is primarily used in head and neck imaging. The shield features adjustable belt for proper positioning. The neck area is empty, allowing visibility of the upper spine and bones during x-ray, while offering protection to the breast area.

CAT#: ELBG

Lead Light 0.35 / 0.5mmPb

Free size, adjustable





Scolio Guard

CAT#: ELSC

Unprotected neck for cervical view. Wrap around belt allows custom positioning of the open area. No-slip fabric underside.

Lead Equiv. : 0.5mmPb

Adult: 190mmW x 660mmL **Child:** 150mmW x 500mmL



Thyroid Guard

Protect essential organ - thyroid, hook and loop closure



CAT#: ELTS - Standard
ELTS-5F 0.5mmPb, Lead Light
EGTS-5F 0.5mmPb, Lead Free

CAT#: ELTR - All round (US) type
ELTR-5F 0.5mmPb, Lead Light
EGTR-5F 0.5mmPB, Lead Free

CAT#: ELTW - Single Body type
ELTW-5F 0.35mmPb, Lead Light
EGTW-5F 0.35mmPB, Lead Free

(We recommend 0.5mmPb for best protection on essential organ)

Gonad Guard

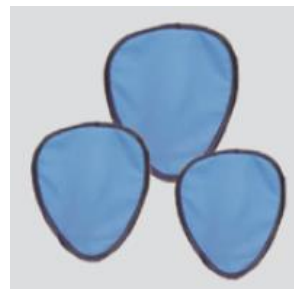
Attached belt with 1" buckle. 0.5mm Pb equivalency protection. Available in three sizes.

CAT#: ELGG

Set of 3

Lead Light 0.5mmPb

(We recommend 0.5mmPb for best protection on essential organ)



Hat Guard

Protection for the top of head. Hook and Loop fitted closure.

CAT#: ELCS

Lead Light 0.5mmPb

(We recommend 0.5mmPb for best protection on essential organ)





Hand Guard

Five fingered protection for full dexterity. 0.5mm Pb Equivalency. Durable, soft vinyl covering. Sell as a pair.

CAT#: ELHG
Lead Light 0.5mmPb
M: 350mm, L:390mm



Secure-Guard

Vented goggles for extreme protection. Adjustable headband keeps goggles securely on head and prevents slippage. Neoprene foam cushioning for facial comfort. Large lens pocket allows for maximum viewing area. Vented to prevent fogging.

CAT#: ELSG
Lead Equiv. : 0.75mm front and sides.
Frame : impact resistant plastic
Weight : 85 grams.



Cover-Guard

CAT#: ELCG
Comfortable protection over regular glasses. Excellent front and side visibility. Provides limited splash protection. **Can be worn over prescription eyewear.** Regular hinges with molded nose piece. Includes 0.75mm Pb glass side shields. Includes premium case.

Lead Equiv. : 0.75mm front and sides.
Frame : black rubberized nylon.
Weight : 85 grams.





Mobile Lead Screen with Window

CAT#: MLSW

Mobile Lead Screen with lead Screen features a 2.00mm Pb equivalence and comes in two standard sizes

- with 4 lockable castle wheels
- lead glass window
- Lead Equivalent = 2.0mmPb

Dimension:

- LS-LB1985: 850 x 1900cm, lead window 150mmH x 200mmW
- LS-LB1912: 1200 x 1900cm, lead window 150mmH x 200mmW



Mobile Wheeled Apron Hanger

Mobile 5/10 Swing Arm Apron Rack organizes and protects up to 10 X-ray aprons in a traditional garment-style rack. Ideal radiation protection storage solution for a busy radiology department. 10 pivoted arms fan out for flexibility to easily store and retrieve aprons. Locking casters glide smoothly for easy mobility.

CAT#: MWAH

- 5 / 10 arms (stainless steel) with detachable bracket

Materials A:

- Full stainless steel arms and frame

Materials B:

- Tubular steel frame with hard epoxy powder coating - Beige colour
- Stainless steel arm hanger

Dimension:

1050mm(L) x 600mm(D) x 1300mm (H)

*the dimension varies between batches to cope with different customers need. Please confirm the final dimension before you place the order.



Wall Mounted Apron Hanger

CAT#: WMAH

- 5 / 10 arms (stainless steel) with detachable bracket
- Stainless steel apron hanger organizes and protects up to 10 X-ray aprons in a wall mounted rack.





MYRAY LEAD APRON WARRANTY – 2 YEARS

- **Extended to 3 Years for Annual Protective Apron Quality Assurance Program (“AGAP”) Participation**

Eightfold Sdn Bhd (“ESB”) warrants that all x-ray protective aprons manufactured under its label to be free of defects in material and workmanship for a period of 2 years from the date of purchase.

Seller's obligation is limited exclusively to the repair or replacement of the defective product. This warranty does not cover damage as a result of abuse, abrasion, or failure to follow care and use instructions.

Customer mishandling of products is not covered under warranty. These include, but are not limited to, the following:

- Melting of apron due to heat exposure
- Any physical damage to the fabric, such as puncture holes through the fabric or core materials of apron due to a sharp object
- Submersion of apron for cleaning purposes

ESB hereby disclaims all other warranties, either expressed or implied. There are no warranties which extend beyond the time frame stated. In no case shall the liability of ESB exceed the purchase or replacement price of the product.

MYRAY LEAD APRON PERFORMANCE

Lead aprons generally have shielding equivalence equal to a 0.25–0.5mm lead barrier, and will only attenuate the radiation. Lead aprons absorb 90%–99% of scattered radiation that reaches them. “Wrap-around” lead aprons are useful when medical personnel spend a lot of time with their backs turned away from the patient. In general, lead aprons absorb more radiation energy than the lead free apron.

According to a study on screen effect of lead rubber plate varying thickness to scattered rays in intervening operation area, the shield effect rate of the lead rubber (0.25, 0.35mm lead equivalent respectively) to the head, chest, abdomen and the lower extremities was 94.2%~98.2% and 95.8%~98.5% respectively.

SHIPPING

Shipping of goods are available within Malaysia and from Malaysia to Singapore, Brunei, Indonesia and Thailand only. Our garments are packed with less folding and maximum protection, in special paper package to ensure the goods reach you is as perfect as it came out of factory.

Should your good receive is not in acceptable forms due to poor courier service handling, please take photo evidences and send it back to us. We will undertake the responsibility to replace you with new one.

APRON RECYCLING

Lead is included in the Toxic Substances List and it should not be disposed of as conventional garbage, but rather as hazardous waste. LMG (lead-free) garments are environmentally friendly and do not need to be recycled.

ESB will gladly accept MalRay brand's Lead Light apparels and accessories back for recycling. Call our sale representative for "Recycle Return Authorization". There will be no recycling charge to you; we only ask that you pay for your own shipping if you happen to be out of Klang Valley.



Eightfold Sdn Bhd (775128-W)



GDPMD No.: 222 15066

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