



## FLAMELITE (S) PTE LTD

No 29 Mandai Estate  
Tower 3 Prestigio 1  
#01-05 Innovation Place  
Singapore 729932  
Tel : 6468 3166 Fax : 6468 7266  
Email : flameliteG@flamelite.com.sg  
Website : www.flamelite.com.sg

CIDB Registered Contractor  
Grade : L3 Type : CR 16  
Co. Reg. No. 199205533 R  
GST Reg. No. M2-0109914-5



## X-RAY SHIELDING GLASS

A special glazing system that combines the high light transmittance and excellent radiation shielding capability into one single glazing assembly.

It consists of premium quality lead glass mounted in a metallic frame.

### GLASS

The glass used is high quality optical glass with high lead and barium content. The rich heavy metal content give the glass a tint of champagne gold. The glass is polished to achieve optical grade which allows very high light transmittance.

The glass surfaces much be protected by layers of acid free tissue and brown paper wrapping. The glass must be free of inclusions or striae that will adversely affect the purpose for which the glass is intended to be used.

Maximum size: 1200mm x 2600mm

### FRAME

The Framing must offer shielding effect to radiation compatible to the glass. The whole frame assembly must be protected by specialized Isotope-lite lead/barium glazing plate. The plate will prevent leakage of radiation. The sealant used is neutral type which will not cause harms to the glass coating.

There much be minimum glass and glazing plate overlapping of 15mm. Any bite less than 15mm will allow strayed radiation.



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## APPLICATION

- a. Viewing windows and insulating glazing for X-ray rooms.
- b. Screen for medical diagnostics
- c. Protection windows in laboratories.
- d. Airport security X-ray screen.
- e. X-ray TV room and CT scanning room.
- f. Angcography room.
- g. Glove box.
- h. Nuclear power industries.

## TEST AND CERTIFICATES

- 1) The glass must be tested by health science authority basing on:-
  - a. Pantak X-ray machine
  - b. PTW Dosimeter Unidos 10002 – 20117
  - c. 35CC Ionization Chamber NO W23361-291
- 2) JIS R 3701 – 1990 Lead Glass for X-ray protection

## CARE

Isotope-lite shall not be used in atmosphere filled with acid gases and excessive humidity.  
It shall not be glazed with sealant with is acidic or alkalis. Edges shall be ground and finished with safety bevel.  
Any chipping of the glass may cause the loss of its shielding effect against radiation.  
Any cleaning and detergent used shall be neutral type.



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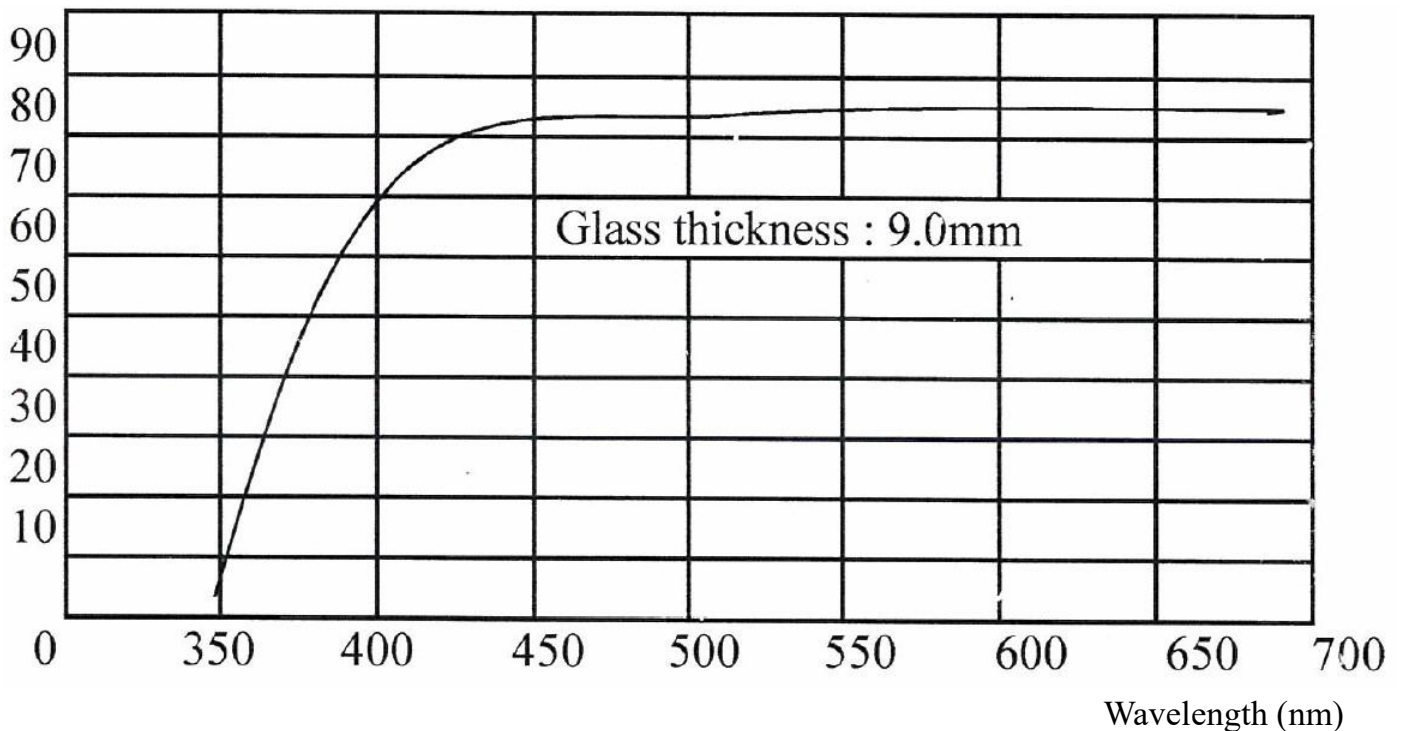
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## PHYSICAL PROPERTIES OF LEAD LINED GLASS

Density	: 4.8 g.cm
Refractive Index	: 1.757
Minimum Transmittance @ 550mm	: 85%
Parallelism error	: 5 minutes of maximum
Heavy Metal Content	: Lead 55%
	: Barium 15%
Mohs' hardness	: 6
Thermal expansion coefficient	: 30 degree – 380 degree
	: 80 x 10 / degree

Fig. 1: Light transmittance of LX-57B glass





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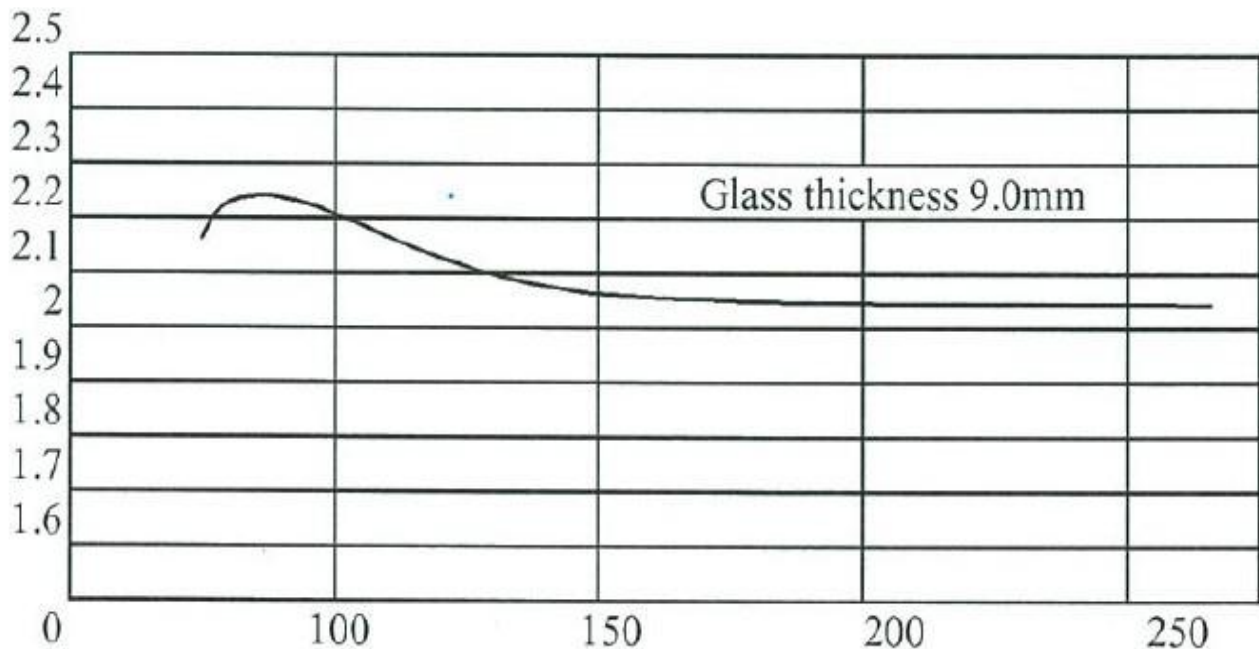
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## NORMAL SHIELDING CHARACTERISTICS

Glass thickness (mm)	Minimum Lead Equivalent (mm Pb)	X-ray pack Voltage (KV)
6.0 +/- 0.3	1.1	
7.0 +/- 0.3	1.5	
8.0 +/- 0.3	1.8	
9.0 +/- 0.3	2	150
10.0 +/- 0.3	2.2	200
11.0 +/- 0.3	2.5	
14.0 +/- 0.3	3	
19.0 +/- 0.3	3	

Fig. 2: Lead equivalent and X-ray peak voltage



X-ray peak voltage (KV)



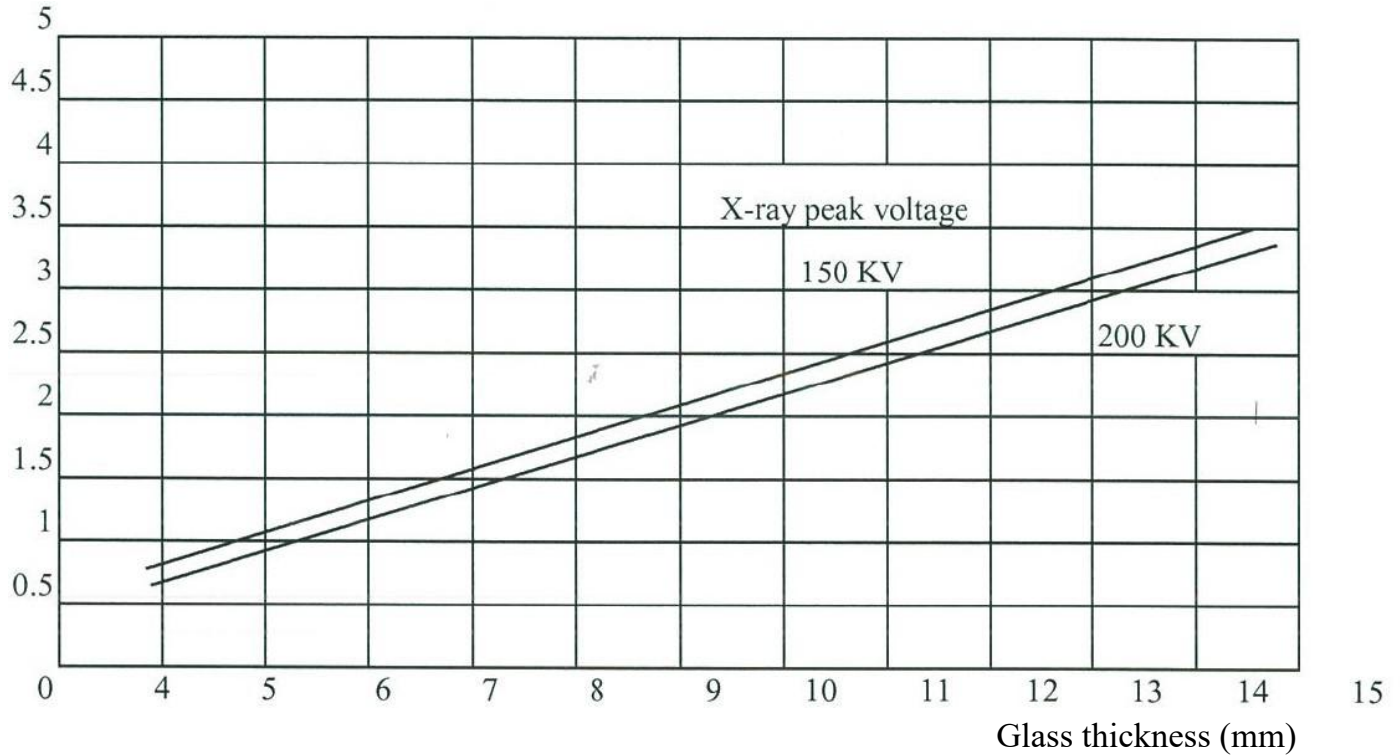
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Fig.3: Glass thickness and lead equivalent



## LIGHT TRANSMITTANCE

At 9mm thickness

400nm: 65%  
 500nm: 86%  
 550nm: 87%

Maximum size: 1200mm x 2600mm  
 Smaller size: Any size available on request

Tolerance of dimensions: +0,-2mm  
 edges bevelled

### Glass Thickness and lead equivalent:

Glass thickness (mm)	Minimum Lead Equivalent (mm Pb)	X-ray pack Voltage (KV)
6.0 +/- 0.3	1.1	150
7.0 +/- 0.3	1.5	
8.0 +/- 0.3	1.8	
9.0 +/- 0.3	2	
10.0 +/- 0.3	2.2	
11.0 +/- 0.3	2.5	
14.0 +/- 0.3	3	200
19.0 +/- 0.3	3	

Minimum density: 4.36  
 Refractive index (nd): 1.71  
 Light transmittance (at 9mm thickness)  
 400nm: 65%  
 500nm: 86%  
 550nm: 87%  
 600nm: 87%

Thermal expansion coefficient:  
 30° - 380°: 80 x 10<sup>-7</sup>/<sup>o</sup>  
 Mohs' hardness: 6

\*JIS R3701 approved products  
 Over 19.0mm in thickness is available on request