MarShield™

Custom Radiation Shielding Products

RADIATION SHIELDING LEAD GLASS

35 Years

Of Excellence

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STANDARD LEAD GLASS

LX-57B Radiation Shielding

Description:

MarShield's LX-57B x-ray shielding lead glass is made of high quality optical grade material. It provides excellent radiation shielding, superb visual clarity, high light transmission and does not discolour due to radiation. The hard, polished surfaces have excellent scratch resistance. LX-57B is available in thicknesses of 7mm, 9mm, 14mm, and 17mm.

Features and Benefits:

Stock sizes are available up to 48" X 96". Available upon special request is **48" X 102".**

Standard Sizes (in inches)	
8x10	20x24
10x10 | 10x12	24x24 | 24x30 | 24x36 | 24x28
12x12 | 12x16 | 12x18 | 12x20	30x30 | 30x36 | 32x40
12x24 | 14x18	36x36 | 36x48 | 36x60 | 36x72 | 36x84 | 36x96
16x20 | 16x24	42x48 | 42x60 | 42x72 | 42x84 | 42x96
18x24 | 18x26	48x48 | 48x60 | 48x72 | 48x84 | 48x96

NOTE: 24-HOUR TURNAROUND TIME IS AVAILABLE ON MOST SIZES

LX-57B is available in the following thicknesses and lead equivalencies:

Thickness	7mm	9mm	14mm	17mm
Lead Equivalent (in)	1/16"	*5/64"	*7/64"	*1/8"
Lead Equivalent (mmPb)	1.6	2.0	3.0	3.3
X-Ray Tube Peak (kV)	150	150	200	200
Weight (ibs/ft²)	6.5	8.1	12.5	14.8
Laminated	No	No	No	Yes (7mm + 9mm)

**Lead Equivalent is guaranteed in (mmPb). The converted fraction (in.) is less than the lead equivalent (mmPb); fraction is over-coverage*

To calculate the values of the range of "Lead Equivalent (ibs/sq.ft.)", we converted from the values of the range of "Lead Equivalent (mmPb)" using the mentioned figues and rounded off the fractions to one decimal place: 1 foot=30.48cm / 1 pound=453.59g / Density of lead=11.3(g/cm3).

Resistant to discolouration due to exposure to ultraviolet rays or cleaning chemicals. The durable LX-57B glass retains its appealing visual clarity.

Offers excellent light transmission (87.3% with 7mm thick glass).
LX-57B is non-combustible and will not emit toxic fumes when being cut.

Both surfaces of LX-57B are polished. Using Mohn's hardness scale, LX-57B tests at level 6 (comparable to feldspar, a constituent of granite). LX-57B has excellent scratch resistance because of its hard surface.

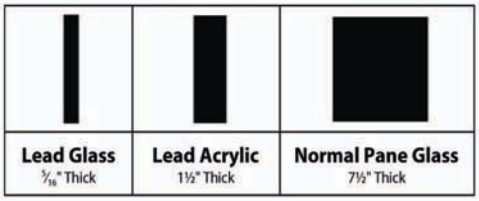
LX-57B is a lead barium type glass of high quality optical grade with over 60 percent heavy metal oxide, including at least 55 percent PbO.

Properties of 7mm, 9mm, 14mm, 17mm LX-57B

- Minimum density: 4.36 (g/cm³)
- Refractive index (Nd): 1.71
- Thermal expansion coefficient: 80 x 10^{-7}/°C (30-380°C)
- Knoop hardness: 370

LX-57B Lead Glass vs. Lead Acrylic/Plastic:

For the Same Lead Equivalent*
1.6 mm Pb at 150kV



Relative Thickness

For the same lead equivalent, acrylic/plastic has to be approximately five times thicker than LX-57B lead glass - significantly reducing observation capabilities. For example, at 16mm Pb, lead glass would be 5/16" thick. Acrylic/plastic would be approximately 1-1/2" thick for the same protection. The extra thickness of acrylic/plastic may require special framing. LX-57B fits standard sized frames.

Comparison Table	LX-57B Lead Glass	Lead Acrylic/Plastic Sheet	Best Product
Combustible	No	Yes	LX-57B Lead Glass
Effect of Water Absorption	None	Effects Length & Thickness	LX-57B Lead Glass
Installation	Standard	Requires Special Care	LX-57B Lead Glass
Light Transmission (1.6mm Lead Equiv., at 150 kV)	87.3%	59.5%	LX-57B Lead Glass
Thickness (1.6mm Lead Equiv., at 150 kV)	7mm	42 mm (6 times thicker)	LX-57B Lead Glass
Weight	6.5 lbs/ft²	14 lbs/ft²	LX-57B Lead Glass
Effects of Sun	None	Causes Cracking	LX-57B Lead Glass
Chemical Resistance			
a) Acid	Greater	Less	LX-57B Lead Glass
b) Alkali	Greater	Less	LX-57B Lead Glass

Applications

Medical

X-ray rooms, operating theatres, radiation therapy rooms, dental clinics, veterinary clinics, laboratories, medical diagnostics screens, and eye protection lenses

Industrial

Airport luggage inspection equipment and radiation testing equipment for industrial products

Nuclear

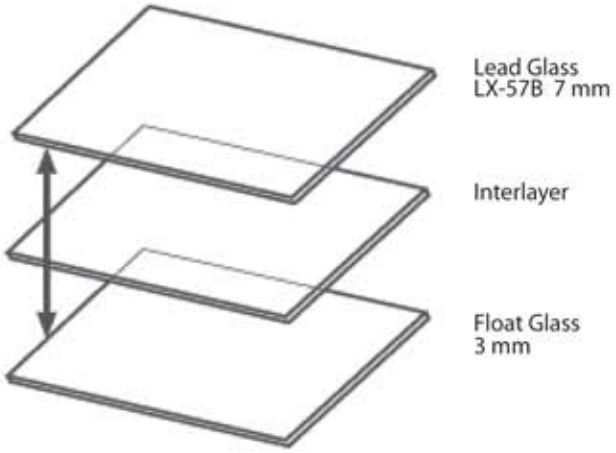
Radioactive storage stations, nuclear fuel development and reprocessing plants, and applications near nuclear reactors

SAFETY LEAD GLASS

Saf-T-Lite Radiation Protector

Description:

MarShield's Saf-T-Lite Radiation Protector glass comprises LX-57B lead glass, an interlayer, and float glass in a laminated sandwich to create a durable, shatter-resistant alternative to lead acrylic/plastic. This lead safety glass is commonly used in our mobile radiation shields and modular radiation barriers.



Features and Benefits:

Saf-T-Lite lead safety glass is available only in 11mm thickness (1.6mm lead equivalency)

Provides excellent light transmission of 87.8%

Weight: 8 lbs. per sq. ft.

Meets or exceeds the high standards of stringent safety regulations established in the medical, scientific, as well as nuclear fields around the world, including ANSI Z97.1-1984 and 16 CFR 1201 Cat. II.

LX Premium Radiation Shielding

Description:

LX Premium is the next generation of radiation shielding glass. It has a multilayer structure, manufactured by inserting LX-57B high-lead glass between panels of protective sheet glass. This results in a glass surface that will not stain or discolour, even in contact with chemicals or if it is wiped with a wet cloth.

Features and Benefits:

High transparency – glass will not stain or discolour when lead substances react to moisture or lipids

Provides excellent light transmission (at 550nm) of more than 80%

Easy to maintain – glass can be using such items as a wet cloth, glass cleaners, and detergents without any concern about fogging, staining or discolouration. You would clean LX Premium the same way you would clean ordinary windowpanes.

Multilayer laminated glass is impact-safe and shatter resistant.

Available in the following thicknesses and lead equivalencies:

Thickness (mm)	12mm	14mm	20mm	22mm
Lead Equivalent (in)	1/16"	*5/64"	*7/64"	*1/8"
Lead Equivalent (mmPb)	1.6	2.0	3.0	3.3
X-Ray Tube Peak (kV)	150	150	200	200
Weight (lbs/ft²)	8.8	10.4	15.5	17

Properties - 12mm, 14mm, 20mm, 22mm LX Premium
Knoop Hardness: 520

Stock sizes are available up to 48" x 96". Available upon special request is **48"x102".**

*Lead equivalent is quaranteed in (mmPb). The converted fraction (in.) is less than the lead equivalent (mmPb); fraction is over-coverage.

To calculate the values of the range of "Lead Equivalent (lbs/sq.ft.)", we converted from the values of the range of "Lead Equivalent (mmPb)" using the mentioned figures and rounded off the fractions to one decimal place: 1 foot = 30.48cm / 1 pound = 453.59 g/Density of lead = 11.3 9g/cm3). Thickness tolerance can be up to +/- 1.3mm.

MarShield

LFX-9 Lead-Free Radiation Shielding Glass

FOR ALL YOUR MAMMOGRAPHY NEEDS

Maximum Radiation Protection – Completely Lead-Free

Description:

MarShield's LFX-9 is a new type of radiation shielding glass that contains no lead. The lead-free glass is made of strontium, barium, and other materials as radiation shielding and provides X-ray shielding of .5mm LE. LFX-9 is suited for shielding low-energy X-rays in applications where impact safety is required. It is commonly used for the screen shielding glass set to mammography operation equipment.

Comparison Table	LFX-9	LFX-57B	Acrylic w/Lead
Mohs' Hardness	6.5	6	3
Visible Light Transmission	85	86	75 and over*
Specific Gravity	2.7	4.4	1.6

*12mm thick product (lead equivalent: 0.5mm Pb)

Features and Benefits:

Completely Lead-Free

Available in a thickness of 9mm with a lead equivalency of 0.5mm

Easy to clean - glass is very scratch-resistant and can be easily cleaned as if it were normal window glass.

Extremely transparent allowing for a clear view.

High Impact Resistance - three sheets of special glass are laminated together using safety interlayers, making it impact safe. LX-9 meets the requirements of ANSI Z97.1-2004, Section 5.1.

Lightweight - the specific gravity of LFX-9 is 2.7, and the weight is virtually the same as regular window glass of relative thickness. Weight: 24.5 kg/m² (~5.1 lbs/ft²)

High Radiation Shielding in PET Scan Treatment

Pro-GR Radiation Shielding

Description:

MarShield's Pro-GR radiation shielding glass is made of glass materials having a lead oxide content rate of roughly 70% that is equivalent to ultra-high lead content block glass for nuclear power facilities. Pro-GR has a radiation shielding capability higher than that of conventional LX-57B lead glass. It is commonly used to shield gamma rays (0.511 MeV) in PET facilities.

Pro - GR Product Data

Thickness (mm)	Pro - GR 14.7	Pro - GR 21.8
Lead Equivalent (mm)	5	7.5
Weight (lbs/ft²)	15.8	23.5
Visible Light Transmission	83%	83%
Specific Gravity	Min. 5.20	Min. 5.20
Refractive Index	1.81	1.81
Maximum Size	1000 mm x1500 mm (42" x 60")	

Pro-GR is Available for Timely Delivery and Long Lead Times are Avoided.