

RADIATION SHIELDING

X-RAY PROTECTIVE GLASS

Glass Code: RWB46

Application: High lead/barium content glass for x-ray protection.

RWB46 provides a high quality, transparent, protective shield against x-ray radiation in medical, technical and research applications. Its high content of lead and barium gives optimum shielding against radiation energies generated by equipment operating in the range 100-300 kV.

Applications for RWB46 include:

- Viewing windows and insulating glazing for X-ray rooms
- Screens for medical diagnostics.
- Protection windows in laboratories.
- Lenses for safety goggles
- Airport security X-ray screens
- Can be laminated to meet safety requirements.



Minimum Lead Equivalence in mm at stated X-Ray Potential

Thickness Range (mm)	100 kV	110 kV	150 kV	200 kV	250 kV	300 kV
5.0–7.0	1.7	1.7	1.6	1.4	1.3	1.3
7.0–8.5	2.3	2.3	2.1	1.8	1.8	1.8
8.5–10.0	2.8	2.8	2.5	2.2	2.2	2.2
11.0–13.0	3.6	3.6	3.3	2.8	2.7	2.8

These values were determined by the National Radiological Protection Board (NRPB) – an independent body – using procedures that satisfy both BS 4031 and JIS Z4501 requirements. In addition, these lead equivalence results satisfy the requirements of JIS R3701 – 1990 within the range of 0 to 300 kV.

RWB46 is supplied as polished plates up to a maximum size of 2000 x 1000 mm. Smaller sizes can be cut to customer requirements and all cut edges are ground with safety chamfers. Different thickness' are available within the ranges listed and can be quoted upon request.



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servicing the nation's lead needs for over **50** years with a full line of radiation shielding products

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Optical Properties		
Refractive Index	Nd	1,757
Abbe Value	vd	29.7
Transmittance in % for 5mm Path	315 nm	Nil
Transmittance in % for 5mm Path	350 nm	.05

Heavy Metal Content	
Lead (pb)	48 %
Barium (Ba)	15 %

Mechanical / Electrical Properties		
Density (minimum)	G/cm ³	4.8
Knoop Hardness	Kg/mm_	440
Youngs Modulus	N/mm_ x 10 ³	62.7
Poissons Ratio		0.23
Brewster Coefficient		0.88
Dielectric Constant		11.0

Thermal Properties		
Exp. Coefficient (20-300° C)	x10 ⁻⁷ /°C	81.8
Annealing Temperature	10 ¹³ Poise	558
Softening Temperature	10 ^{7.6} Poise	685

Nuclear Radiation Shielding Glass

A Complete range of high quality nuclear radiation shielding glasses is manufactured for incorporation into a variety of shielding viewing systems including:

- Maintenance free solid glass windows
- Liquid filled windows
- Composite windows comprising glass blocks and liquids

Nuclear radiation shielding glasses are optical glasses of the highest quality, available in a range of stabilized and un-stabilized forms.



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IMPORTANT NOTICE!!

INTRODUCTION

The shielding characteristics of "x-ray glass" are achieved by using a glass composition that is high in lead and barium. This makes the glass, when compared to float glass, more sensitive to chemical reactions from acidic, alkaline substances or water vapor. Glass should not be exposed to acid gases, humidity and strong temperature fluctuations combined with humidity.

INSTALLATION OF RADIATION SHIELDING GLASS

Radiation shielding glass cannot be used for exterior applications.

- When installing, care should be taken that the sealing agents do not contain any acid or alkaline substances (e.g. acetic acid, ammonia).
- Labels may cause staining on the glass surface due to the reaction of the adhesive.
- It is advisable to wear cotton gloves when handling the glass to avoid leaving fingerprints.

CLEANING RECOMMENDATIONS FOR RADIATION SHIELDING GLASS

General cleaning advice:

- Do not use harsh abrasive cleaning chemicals or materials - these could abrade the surface and leave scratch marks, which cannot be removed.
- Never allow any liquid cleaning material to dry on the glass surface - this will leave 'water marks' on the glass surface that will be very difficult to remove.
- Use only mild detergents.

Depending on the type of cleaning to be made, the following recommendations are given:

- General cleaning for the removal of dust film etc. - use a soft cotton cloth together with isopropyl alcohol and clean in a smooth circular motion.
- Cleaning of difficult stains - use a mild detergent diluted with water to the manufacturer's recommendations and clean with a soft cotton cloth. Dry the surfaces immediately after cleaning with a dry cotton cloth, and using a further soft cotton cloth, clean with isopropyl alcohol as in section.
- The following are acceptable methods for cleansing radiation shielding glass: water, non-abrasive cleansing agents, spirits and hydrous emulsion of cerium oxide (polishing grade).



APPROVED DISTRIBUTOR FOR PILKINGTON Med-X™ GLASS

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