

GIB X-BLOCK®

Lead-free X-ray shielding system



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Benefits

- Lead-free X-ray radiation protection
- As easy to install and joint as standard plasterboard
- Eliminates the need for complex installation procedures usually associated with installing lead-based lining solutions
- Enhances other important performance requirements such as noise control and fire ratings



Angliss Hospital, VIC

GIB X-BLOCK® system is a unique lead-free plasterboard and jointing compound designed for X-ray radiation protection. The lead-free plasterboard contains barium sulphate which forms an effective barrier against X-ray radiation. The jointing compound used on the GIB X-Block plasterboard is designed to give lead equivalent joints on walls and ceilings and it provides a uniform X-ray radiation barrier.

The GIB X-Block system also offers high sound insulation performance.

Product Information

SHEET SIZE	THICKNESS (mm)	WIDTH (mm)	LENGTH (mm)	WEIGHT* (kg/m ²)
	12	1200	3000	15.3
FIRE HAZARD PROPERTIES	Group 1 material according to the requirements of BCA Section C1.10 Fire Hazard Properties Average Specific Extinction Area < 250 m ² /kg as required by BCA Specification C1.10a, Clause 3(c)			
COMBUSTIBILITY	Classified as non-combustible according to the BCA Section C1.12			
VOLATILE ORGANIC COMPOUNDS	Less than 0.5mg/m ³ TVOC			

* Weights indicated are nominal

Application

The GIB X-Block system consisting of GIB X-Block plasterboard and jointing compound has been designed to provide X-ray radiation protection in X-ray diagnostic rooms within medical facilities, dental clinics and veterinary clinics. The main applications for this system are walls and operator barriers, but it may also be used as a ceiling lining.

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Performance



X-Ray Resistant

Lead-free plasterboard and jointing compound designed for X-ray radiation protection.



Fire

GIB X-Block has been fire tested in accordance with Australian Standard 1530.4 *Methods for fire tests on building materials, components and structures*.

X-Ray Resistant

X-ray shielding requirements are typically specified as a thickness of lead. The lead equivalence of GIB X-Block systems depends upon the radiation energy level. Refer to Table 1 for the lead equivalence of GIB X-Block systems at various X-ray energy levels. Always seek advice from a Health Physicist to ensure that the requirements for radiation shielding are met.

Fire

GIB X-Block systems have been designed to meet the performance requirements of the BCA Volume 1, *Fire Resistance* section and Volume 2 *Fire Safety* section.

All fire rated plasterboard systems in the technical literature have been independently tested or assessed by qualified fire engineers.

Refer to the latest Knauf Technical Manual on the website for further radiation test results, systems, installation and construction details.

Installation

GIB X-Block is installed using the 'Fastener Only Method'.

GIB X-Block compound must be used:

- In the gap between the sheets
- To fill the recessed joints on every layer
- As the bedding coat with paper tape and as the second coat for the face layer
- To fill any other gaps and to cover all face layer fastener heads

Never joint sheets with fire sealant.



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GIB X-Block Millimetres of Lead Equivalence for Different X-Ray Energies

Table 1.

13MM GIB X-BLOCK® LEAD EQUIVALENCE (MM)				
X-RAY ENERGY (kVp)	1 layer	2 layers	3 layers	4 layers
80	0.80	1.60	2.40	*
100	0.75	1.50	2.25	2.90
125	0.50	1.00	1.40	1.90
150	0.40	0.70	1.00	1.30

Uncertainties ± 0.1 mm

Source: National Radiation Laboratory Reports 24062003/1, 24062008, 20022009.

*Quote from Report 20022009: 'Determination of lead equivalence for 4 layers of GIB X-Block Plasterboard at 80kVp was not feasible owing to the extremely low transmission of the x-rays through this sample thickness'.

kVp - kilovolts peak. Maximum voltage applied across the x-ray tube. The kVp controls the maximum energy of the emitted x-rays.

X-Ray Resistance Energy Levels

X-ray radiation is measured in kilovolts peak (kVp). Depending on the type of radiation equipment used in the room, diagnostic facilities will have different requirements for shielding:

- CT 120-140 kVp
- General radiographic rooms 60-90 kVp
- Dental 60-80 kVp
- Mammography 25-35 kVp

Warranty

Knauf's products are guaranteed by a 10 Year Warranty. Visit knaufplasterboard.com.au for details.

Technical Advice

For technical advice, please call Knauf technical services on **1300 724 505**.