

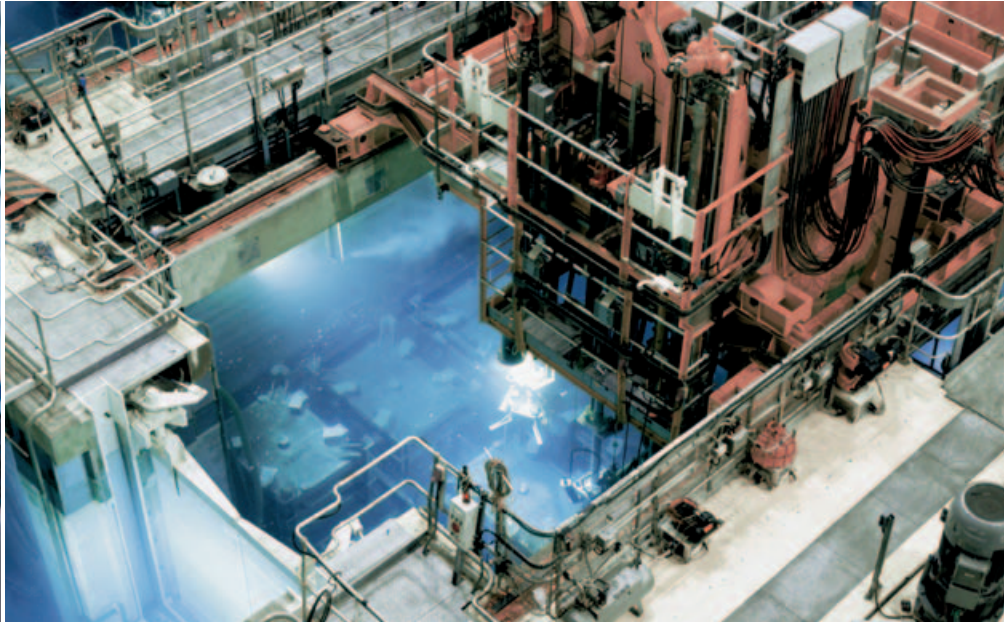
SIMONA



dehoplast[®] x-protect

Plastic Sheets for Neutron Absorption

dehoplast® x-protect – Reliable Neutron Protection in Medical and Nuclear Installations



dehoplast® x-protect by SIMONA is a specially developed polyethylene for neutron shielding. Owing to a high level of hydrogen in the plastic and homogeneously distributed boron compounds, neutron radiation in medical and nuclear applications can be slowed down and absorbed in a highly effective manner.

dehoplast® x-protect is available as pressed sheets dehoplast® x-protect 500 (high molecular weight) and dehoplast® x-protect 1000 (ultra-high molecular weight).

Examples of applications

- Lining of high-radiation rooms in clinics
- Radiotherapy systems
- Nuclear power plants
- Nuclear research centres
- Reprocessing plants
- Nuclear waste transport and storage
- Nuclear-powered ships and submarines
- Spacecraft and space stations

Excellent properties

- High absorption of thermal and free neutrons
- Low absorption of moisture
- Low specific weight compared to steel and lead
- High chemical resistance
- Good abrasion resistance
- High wear resistance
- High impact strength
- Wide service temperature range

Product Range and Properties of dehoplast® x-protect

dehoplast® x-protect 500 and dehoplast® x-protect 1000

Pressed sheets (formats/thicknesses)

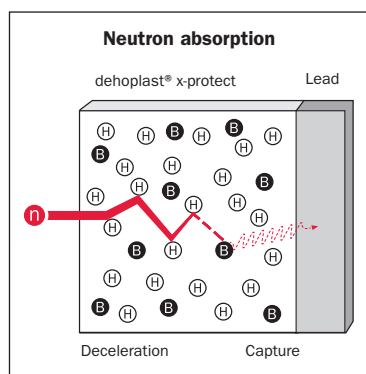
	2000 x 1000 mm	20 to 120 mm
	Colours	black, natural

Other formats, colours and intermediate thicknesses available on request.



+ Excellent neutron absorption

The boron content and homogeneous distribution of boron compounds in dehoplast® x-protect sheets ensure effective absorber-ency. The standard proportion of boron in dehoplast® x-protect is 5%. The boron content can be raised further, which causes an increase in the level of neutron absorption.



When applying dehoplast® x-protect, the high-energy neutrons are slowed down by the hydrogen atoms in the polyethylene and then captured by the boron atoms. Any resulting secondary radiation can be attenuated in a further layer, e.g. one made of lead. The diagram opposite shows how a neutron shield made of dehoplast® x-protect actually works.

+ Good processing capability

dehoplast® x-protect sheets are lighter than other neutron protection materials, as well as being easy to machine.

For further information, please contact our Technical Service Center:

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Material Specifications of dehoplast® x-protect

Material specifications

	dehoplast® x-protect 500	dehoplast® x-protect 1000
Density, g/cm ³	1.020	0.980
Tensile modulus of elasticity, MPa	1200	1000
Impact strength, kJ/m ²	without break	without break
Notched impact strength, kJ/m ²	23	–
Fire behaviour, DIN 4102	B2 normal flammability	B2 normal flammability
Temperature range, °C	–80 to +80	–100 to +80



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