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XENOLITE “TB” Grade (series 700) Technical Description & Specification

XENOLITE “TB” is a lead-free, lightweight, flexible and recyclable x-radiation protection material, using a mixture of two attenuating elements, antimony and bismuth, in a mixture optimized for minimum area-weight and maximum attenuation in the key diagnostic imaging range of 70 – 100 kV.

“K-Edge Technology”

The lighter weight (lead-vinyl is 21% heavier) results from the use of the two attenuating elements, where the antimony provides more efficient attenuation of that portion of the photon spectrum below the K-edge window of lead (50 - 88 keV), complemented by the higher Z element bismuth, which is more efficient for stopping higher energy radiation (> 88 keV), and also covers the K-edge window of antimony (< 35 keV).

Combined with Advanced Polymer Technology

The attenuating elements, in fine powder form, are supported, encapsulated and homogeneously distributed in a tough-but-flexible, high-tech plasticized Dow elastomer matrix. This Dow-Dupont developed elastomer carrier was selected in 2012, after a year’s R&D as having the best balance of toughness, flexibility, durability and cracking resistance, and is more commonly used for flexing components (running shoes, wire and cable etc).

Environmental Benefits.

The lead-free material is not “cross-linked” (or “cured”) and is therefore fully recyclable, and thermally reprocessible, or may be disposed of as a non-hazardous, non-toxic waste, in municipal landfills.

Specifications

Area-weight **5.68 kg/ sq m** (10.7 lb/ sq yd) for 0.50 mm Pb equivalence (80-100 kV*)

Protection 0.50 (4-ply), 0.35 (2-ply) and 0.25 (2-ply) mm Pb equivalence *

Transmissions 80 kV 0.50mm 2.1% 0.35mm 4.5% 0.25 mm 8.2%

(direct beam) 100 kV 6.2 % 11.3 % 17.9%

*Test Method IEC 1331-1/ EN 61331-1, 80 kV (0.15 mm Cu) & 100 kV (0.25 mm Cu), narrow

*Calibration data by accredited ATI lab, Innsbruck Univ. AT, Aug 2012 (copies available)

Tolerances - 7%/+2% (thickness, weight and mm Pb), within DIN EN 61331-3 limits

