



Certified Therapy Grade Solid Water[®]

GAMMEX 457-CTG

Gammex 457-CTG is a Certified Therapy Grade (CTG) of Solid Water[®] that is manufactured to the most exact quality assurance standards in the industry and is ideally suited to AAPM's Task Group 51 protocol recommendations. CTG Solid Water[®] is designed for electron and photon beam measurements including relative ionization, depth dose and uniformity.

Gammex performs meticulous analysis of each slab to ensure the highest possible quality. We provide a Certificate of Conformance with each slab that includes:

- Calculated elemental composition
- Calculated mass
- Volume electron densities
- Electron and photon transmission characteristics
- Measured physical dimensions

A radiograph is also provided demonstrating that the product is free from voids, contamination or other artifacts. Our precision manufacturing techniques provide ion chamber cavities free from air pockets or voids and assure measurement accuracy and reproducibility of chamber placement within the radiation beam.

Gammex 457-CTG is available in 20x20 cm, 30x30 cm, and 40x40 cm slabs with thicknesses from 0.2 cm to 6.0 cm.

continued

Gammex



continued from front...

Convenient packages of CTG Solid Water® kits are also available in the following sizes:

Gammex 457- CTG Kit 4.5

- 2 ea 0.2x30x30 cm slab
- 2 ea 0.3x30x30 cm slab
- 1 ea 0.5x30x30 cm slab
- 1 ea 1.0x30x30 cm slab
- 1 ea 2.0x30x30 cm slab with chamber cavity

Gammex 457-CTG Kit 18.5

- 2 ea 0.2x30x30 cm slab
- 2 ea 0.3x30x30 cm slab
- 1 ea 0.5x30x30 cm slab
- 1 ea 1.0x30x30 cm slab
- 2 ea 2.0x30x30 cm slab
- 1 ea 4.0x30x30 cm slab
- 1 ea 6.0x30x30 cm slab
- 1 ea 2.0x30x30 cm slab with chamber cavity

Gammex 457-CTG Kit 21.5

- 2 ea 0.2x30x30 cm slab
- 2 ea 0.3x30x30 cm slab
- 1 ea 0.5x30x30 cm slab
- 1 ea 1.0x30x30 cm slab
- 1 ea 2.0x30x30 cm slab
- 3 ea 5.0x30x30 cm slab
- 1 ea 2.0x30x30 cm slab with chamber cavity

SPECIFICATIONS

Electron and Photon Stopping Power

Linear attenuation coefficient relative to water shall be 1.030 ± 0.01 for photon energies from 100 kV to 24 MV.

Homogeneity

Material shall be free from air bubbles or other artifacts greater than 1 mm in diameter within 5 cm of the center of the slab. No more than two (2) air bubbles or other artifacts greater than 2 mm in diameter outside the 5 cm radius, but within 10 cm of center. Scanning for homogeneity shall be done by x-ray at 50 kVp, no filtration, with a dose sufficient to produce an x-ray image of 0.8 to 1.2 o.d.

Dimensions

Tolerance for the length and width, or diameter of the Gammex 457-CTG material shall be the nominal ± 0.5 mm Thickness

Tolerance ± 0.15 mm (0.006 in)

Flatness ± 0.15 mm (0.006 in)

Where applicable, squareness shall be within $90^\circ \pm 0.3^\circ$

Sizes 20x20 cm, 30x30 cm, and 40x40 cm (other sizes upon special request)

Thicknesses 0.2 cm to 6.0 cm

Certification

Each batch of Gammex 457-CTG material shall be irradiated on a linear accelerator, using 18 MeV electrons and 6 MV photons. A certified copy of the scan results accompanies each slab and includes the following data:

- Measured depth ionization for electrons and photons relative to water.
- Calculated mass restricted electron stopping power relative to water.
- Calculated linear attenuation coefficient relative to water.
- Measured physical density 1.043 ± 0.005 g/cm³
- Calculated elemental composition (typical, H-8.1, C-67.2, N-2.4, O-19.9, Cl-0.1, Ca-2.3)
- Calculated mass electron density (0.539 ± 0.001 e-/cm³)
- Calculated electron density (0.562 ± 0.003 e-/cm³)