

Lutetium Test Adapters

Product Overview



Thermo Scientific Lutetium Test Adapters are a real smart alternative to conventional check sources and offer a lot of unique advantages to our customers using radiation detectors.

- **A 3.7E10 year half-life means:**
 - **no need for error-prone half-life corrections**
 - **no need for reoccurring purchase of the (decayed) check sources**
- **The adapters provide a highly reproducible and uniform activity content of 50 Bq/g (1.3 nCi/g)**
- **All test adapters of the same type have virtually the same activity!**
- **Beta-type adapters provide nearly identical surface emission rates**
- **The design of a special shape enclosures and high density Lu₂O₃ ceramics minimizes the required activity for small size detectors**

Conventional test sources for radiation monitors suffer from a number of inherent problems: Every source is an individual and unique item regarding activity and surface emission rate. Sources from different manufacturers may have different spectra from the emitted particles depending on the production process. Furthermore large area test sources may have variations of the emission rate over the different sections of the surface and in many cases the user needs to correct for the decay of the radioisotope. The thin active surface is always a delicate part of the source.

Thermo Scientific Lutetium Test Adapters contain the isotope Lu-176 with 3.8E10 years half-life and a natural abundance of 2.6 %, which yields a specific activity of approximately 50 Bq/g of the pure element Lutetium. The unique feature of using a chemically pure bulk substance containing the radioisotope in its natural abundance results in a totally constant and homogeneous surface emission rate. Each and every source of the same surface area has the same beta emission rate, regardless of small variances in the thickness of the Lutetium-oxide ceramics. Furthermore, due to their natural origin and low specific activity, in respect to many national regulations these adapters are not considered as radioactive material. These new test adapters can contribute to a reduction of calibration cost and instrument downtime, as well as to an increased user confidence and familiarity with "his" or "her" instrument.

For more information please ask for a special paper:

"Test Adapters Based on Natural Lutetium - a Discussion of Benefits versus Conventional Check Sources".

Beta/gamma test adapters

High precision, low energy test adapters for performance verification of the RadEye B20 and other instruments with pancake detector.

Lutetium Test Adapter with 9 g Lu_2O_3 : # **425068571**

50 mm diameter, 3 mm height (acrylic glass housing)

40 mm diameter, 1 mm height (Lu_2O_3 ceramics inlet)

Typical net count rate for RadEye B20: 6 cps



Test adapters for large area beta contamination probes with an inherently homogeneous surface emission rate of 0.8 particles per $\text{cm}^2\cdot\text{s}$ - perfect for training and calibration.

Lutetium Test Adapter with 80 g Lu_2O_3 : # **425068371**

Size: 120 x 200 x 5 mm total;

110 cm^2 (74 x 148 mm) Lu_2O_3 surface.



Please ask for a detailed data sheet!

Gamma test adapter for RadEye PRD

Special shaped lutetium test adapter to match the RadEye PRD housing.

Lutetium Test Adapter with 36 g Lu_2O_3 : # **425067071**

Typical net count rate for RadEye PRD: 100 cps

Indication of "low energy" NBR alarm. A carrying case is included.



Universal gamma test adapter for portable scintillation detectors and gamma spectroscopy

Lutetium Test Adapter with 50 g Lu_2O_3 : # **4254948**

62 mm diameter, 7 mm height (aluminium housing)

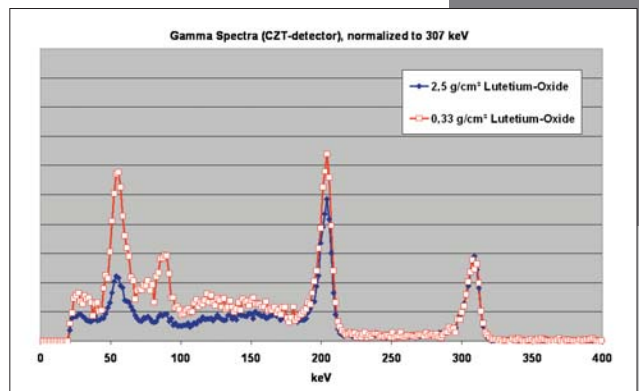
55 mm diameter, 3 mm height (Lu_2O_3 ceramics)

Typical net count rate for 2"x2" NaI(Tl) detectors: 300 cps

Immediate identification of "artificial"

NBR alarm for FHZ 672 E-10,

net dose rate 30 nSv/h [3 $\mu\text{R}/\text{h}$]



Gamma test adapters for Thermo Scientific radiation portal monitors

FHT 1388 - FHT 1386 - SGS I - SGS II - ASM

Benefits:

- Challenge (response test) your system with a realistic “source” for best performance
- Determine detector degradation by measuring effective scintillator clarity with a realistic “source”
- Optimize your system setup parameters

Lutetium Test Adapter with 100 g Lu_2O_3 : # 4254949

Dual disc design, can be mounted directly to the FHT 1388 area detectors (plastic housing).

171 mm length, 61 mm width, 17 mm height (aluminium housing)

2 x 55 mm diameter, 3 mm height (Lu_2O_3 ceramics)

Typical net count rate for large area detectors: 1000 cps

Immediate identification of “artificial” NBR-Cs alarm for FHT 1388 versions and FHT 1377 PackEye. Including carrying case.



Lutetium Test Adapter with 100 g Lu_2O_3 : # 425494910

Same as above with holder for monitors with metal enclosure (ASM/SGS installations).



Lutetium Test Adapter with 200 g Lu_2O_3 : # 4254950

Quattro disc design, can be mounted directly to the FHT 1388 area detectors (plastic housing). The adapter is recommended for locations with higher background.

4 x 55 mm diameter, 3 mm height (Lu_2O_3 ceramics)

Typical net count rate for large area detectors: 2000 cps

Immediate identification of “artificial” NBR-Cs alarm for FHT 1388 versions. Including carrying case.

Lutetium Test Adapter with 200 g Lu_2O_3 : # 425495010

Same as above with holder for monitors with metal enclosure. (ASM/SGS installations).

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