

# • Nuclear medicine • Flood sources •

Effective scintigraphy interpretation requires checking of quality picture and spectrometric performance of gamma cameras. (could influence the correct interpretation of scintigraphs).

CERCA LEA produces rectangular [flood sources](#) designed for gamma cameras in order to check the uniformity response of the camera system and check nominal settings.

## • Rectangular sources

Rectangular sources contain [cobalt-57](#) and are suitable for use with all types of gamma cameras with a rectangular field of view.

CERCA LEA's rectangular sources have an ergonomic design for a best handling and storage. They are provided with two side handles for lifting, enabling contact with the active area to be avoided.

A model is available without handles in a lighter plastic case that cuts its weight (4 kg), for gamma cameras unable to accommodate sources with handles.

## • Technique

Rectangular sources are classified as "sealed sources" C22212 in accordance with AFNOR NF M61-002, ISO 2919.

The [uniformity](#) of source photon emission is measured using a NaI(Tl) detector. 2200 measurements are performed for an active area of 610 x 420 mm. The standard deviation with respect to the distribution is guaranteed less than 1%.

The source is placed in a [lead-shielded](#) transport trolley for radiation protection and storage.

## • Calibration certificate

Calibration certificate shows the following details:

- radionuclide,
- activity and uncertainty at a given date,
- standard deviation of counting distribution (emission uniformity),
- level of impurities.

# • Nuclear medicine • Flood sources •

## • Available packaging



TYPE

**H**

**Plastic case without handles**

**Outside dimensions: 635 mm x 435 mm**

**Active area: 610 mm x 420 mm**

**Weight: 4 kg**



TYPE

**I**

**Plastic case with handles**

**Outside dimensions: 765 mm x 435 mm**

**Active area: 610 mm x 420 mm**

**Weight: 4.3 kg**

## Flood sources

Radionuclide half-life	Radiation energy (MeV)		Product code	Activity		Active area	Type	Measurement uncertainty %
	$\gamma$	$X_k$		MBq	mCi			
$^{57}\text{Co}$ $2,72 \times 10^2$ days	0,014	0,006	CO57EHS30	$1,9 \times 10^2$	5,1	610 x 420	H	3
	0,122		CO57EHS40	$3,7 \times 10^2$	$1 \times 10^1$	610 x 420	H	3
	0,136	CO57EHS45	$5,5 \times 10^2$	$1,5 \times 10^1$	610 x 420	H	3	
		CO57EHS50	$7,4 \times 10^2$	$2 \times 10^1$	610 x 420	H	3	
		CO57EHSI30	$1,9 \times 10^2$	5,1	610 x 420	I	3	
		CO57EHSI40	$3,7 \times 10^2$	$1 \times 10^1$	610 x 420	I	3	
		CO57EHSI45	$5,5 \times 10^2$	$1,5 \times 10^1$	610 x 420	I	3	
		CO57EHSI50	$7,4 \times 10^2$	$2 \times 10^1$	610 x 420	I	3	

## • Accessory

Shielded rolling case

Reference : VALISE



## • Made-to-measure sources upon request

Activity on request

Radionuclide      Type of holder  
(holder H)

**CO57EHS50MBQ**

Type of product      Required activity  
(Flood source)      ( $7,4 \times 10^2$  MBq)

# • Nuclear medicine • Pen point marker •

The pen point marker contains **cobalt-57** and is designed to enable clinicians using a gamma camera to trace the outline of body organs or highlight regions of particular interest.

## • Technique

Radioactive solution is deposited to create a point source.

After drying, the tip is screwed onto an aluminum rod which is engraved with the radionuclide symbol, identification number and nominal activity.

Such sources are classified as “**sealed sources**”, and are EU approved, with classification C22212 in accordance with AFNOR NF M61-002, ISO 2919.

Activity is around 3.7 MBq, enabling very bright images to be obtained in a few seconds.

The markers are supplied with a lead stand which optimize radiation protection exposure when not in use.

## • Pen point marker



A: radioactive deposit  
Length: 185 mm

Radionuclide	Product code	Activity		Diameter	Measurement uncertainty %
		kBq	μCi		
<sup>57</sup> Co	CO57EMSA40	3,7 x 10 <sup>3</sup>	1 x 10 <sup>2</sup>	8 mm	10

## • Accessory delivered with pen point marker

Basis delivered with lead for physical radiation protection and storage.



# • Nuclear medicine • Gamma reference sources •

Gamma reference sources for dose calibrators are characterized in terms of activity.

Their geometry and certified activity enable them to be used in testing the constancy of response of dose calibrators.

## • Technique

These sealed sources are packaged for ease and safety of handling.

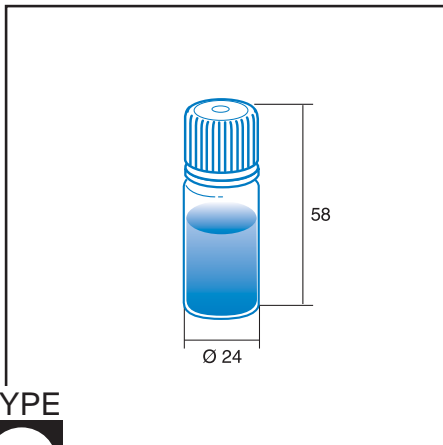
The radionuclide is uniformly distributed within a thermosetting resin. LEA proposes 3 long-lived radionuclides covering a wide energy range from 80 keV to 1330 keV.

Type G sources are classified as “sealed sources”.

They are approved under the classification C22212, complying with the standards AFNOR NF M61-002, ISO 2919 and ANSI N 542.

The calibrated source is supplied in a lead container whose thickness complies with transport standards.

## • Available packages



TYPE  
**F**

**Plastic vial** with screwed and bonded polypropylene cap containing thermosetting resin corresponding to 10 cm<sup>3</sup> of solution.

## Gamma reference sources for dose calibrators

Radionuclide Half-life	Radiation energy MeV)		Product code	Activity		Measurement uncertainty %	Radionuclide used
	γ	X <sub>k</sub>		MBq	mCi		
<b><sup>133</sup>Ba</b> 1,05 x 10 <sup>1</sup> years	0,081	0,031	<b>BA133EGAF50</b> <b>BA133EGAF55</b>	1 x 10 <sup>1</sup>	2,7 x 10 <sup>-1</sup>	3	<b><sup>131</sup>I - <sup>123</sup>I</b> <b><sup>201</sup>Tl - <sup>99</sup>Tc<sup>m</sup></b> <b><sup>111</sup>In</b>
	0,276			2 x 10 <sup>1</sup>	5,4 x 10 <sup>-1</sup>		
	0,302						
	0,356						
	0,384						
<b><sup>57</sup>Co</b> 2,72 x 10 <sup>2</sup> days	0,122		<b>CO57EGAF80</b> <b>CO57EGAF90</b>	1 x 10 <sup>2</sup>	2,7 x 10 <sup>-1</sup>	3	<b><sup>99</sup>Tc<sup>m</sup></b>
	0,136			2 x 10 <sup>2</sup>	5,4 x 10 <sup>-1</sup>		
<b><sup>137</sup>Cs + <sup>137</sup>Ba<sup>m</sup></b> 3,02 x 10 <sup>1</sup> years	0,662	0,032	<b>CS137EGAF50</b> <b>CS137EGAF65</b>	1 x 10 <sup>1</sup>	2,7 x 10 <sup>-1</sup>	3	<b><sup>131</sup>I - <sup>18</sup>F</b>
				4 x 10 <sup>1</sup>	1,1 x 10 <sup>-1</sup>		

The laboratory is approved COFRAC and tests your dose calibrators, within your nuclear medicine department. Our team remains at your disposal to answer your questions.

# • Nuclear medicine • Gamma point sources •

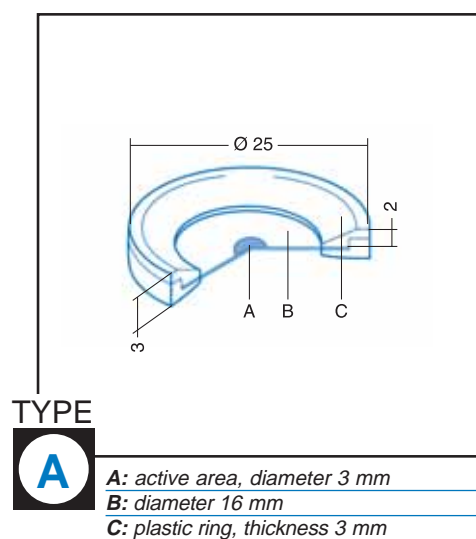
Gamma point sources (active diameter 3 mm) are particularly robust and characterized in activity (kBq). They are used for checking gamma camera orientation.

## • Technique

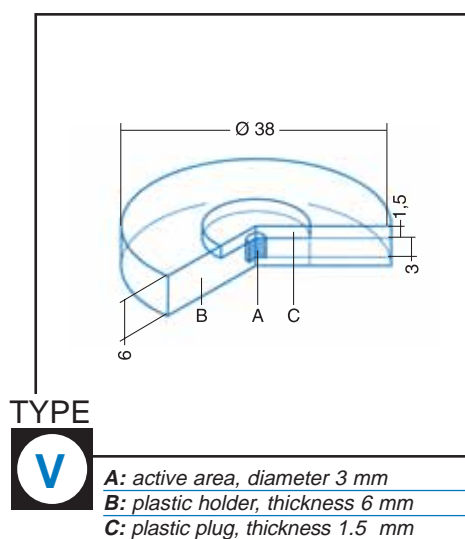
The radionuclide is either deposited in the cavity of a plastic holder sealed with a plastic plug (type V) or hot-sealed between two plastic foils mounted in a plastic ring (type A).

CERCA LEA proposes these sources with a choice of two radionuclides: barium-133 and cobalt-57 (depends on the model).

## • Available holders



Non-biding color



Radionuclide	Radiation energy (MeV)	Product code	Activity / Approximate activity	Holder Diameter	Type	Measurement uncertainty %
Half-life	$\gamma$		kBq $\mu\text{Ci}$	mm		
<b><sup>133</sup>Ba</b>						
1,05 x 10 <sup>1</sup> years	0,276	<b>BA133EGSA25</b>	7 x 10 <sup>2</sup>	25	A	5
	0,302	<b>BA133EGSV25</b>	7 x 10 <sup>2</sup>	38	V	5
<b><sup>57</sup>Co</b>						
2,72 x 10 <sup>2</sup> days		<b>CO57EGSV25</b>	7 x 10 <sup>2</sup>	38	V	5
		<b>CO57EGSV40</b>	3,7 x 10 <sup>3</sup>	38	V	5

# • Nuclear medicine • Sources for PET •

CERCA LEA supplies sources used for the calibration and attenuation correction of the PET:

- GE Healthcare
- SIEMENS SAS Healthcare
- PHILIPS Healthcare

A wide range of sources (activities and dimensions) are available.

## • Rod and pin sources

Rod and pin sources are typically used as calibration sources for scanner set-up and periodic scanner calibration or normalisation. \*They are also used as transmission sources for patient attenuation correction.

## • Cylinder phantom sources

Cylinder phantom sources are typically used as calibration sources for scanner set-up and periodic scanner calibration in 2D and 3D modes.

## • Point sources

Point sources are used as calibration sources for scanner set-up and periodic scanner calibration. They are also used as spot markers to identify anatomical point of interest and as transmission sources for attenuation correction measurements.

\*Consult your scanner supplier for sources applications.



*To order: see Commercial Information on pages I.1 – I.5 of the INFORMATION section*