

RITVERC GmbH  
Radiation Sources  
Product Catalog  
Rev. 2.0/07/2016  
26/32

· X-ray Sources  
· Gamma Sources  
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· Beta Sources  
· Reference Sources

# Reference Sources



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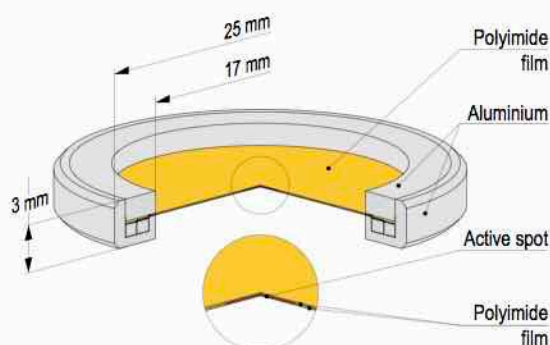
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## Reference and Calibration Gamma Sources — OSGI-R

$^{22}\text{Na}$ ,  $^{54}\text{Mn}$ ,  $^{55}\text{Fe}$ ,  $^{57}\text{Co}$ ,  $^{60}\text{Co}$ ,  $^{65}\text{Zn}$ ,  $^{88}\text{Y}$ ,  $^{109}\text{Cd}$ ,  $^{113}\text{Sn}$ ,  $^{133}\text{Ba}$ ,  $^{134}\text{Cs}$ ,  $^{137}\text{Cs}$ ,  
 $^{139}\text{Ce}$ ,  $^{152}\text{Eu}$ ,  $^{207}\text{Bi}$ ,  $^{241}\text{Am}$

Reference and calibration gamma sources are used for efficiency and energy calibration of gamma-spectrometric equipment, testing of ionizing chambers and scintillation counters.

Radionuclide is deposited on polyimide film with tolerance on activity  $\pm 20\%$ . Active spot smaller than 3 mm. Active spot is sealed by thermal gluing of 2 or 4 polyimide foils with total thickness 100 or 200  $\mu\text{m}$ . Foil is mounted into aluminium ring with diameter 25 mm (29 mm on request) and height 3 mm. On surface of the ring are engraved producer logo, element symbol with atomic weight, serial number and production month. Sources meet ISO 2919 requirements to sealed radiation sources. Source type is recommended for indoor laboratory applications. ISO classification: C33141.



### Multinuclide OSGI-R sources

Multinuclide OSGI-R sources are recommended as reference standards for efficiency and energy calibration of gamma-spectrometers with semiconductor detectors.

Active spot of the source contains 4 nuclides:

$^{88}\text{Y}$  — 370 kBq

$^{133}\text{Ba}$  — 37 kBq

$^{152}\text{Eu}$  — 37 kBq

$^{241}\text{Am}$  — 37 kBq

At least 20 energy lines are required for efficiency calibration of semiconductor detector of HPGe and Ge(Li) types.

Source is designed for 2 years useful work.

Advantages:

- all calibration data are acquired in one run. This reduces systematic mistakes, while all components are measured at the same time and exposition.
- time saving compare to calibration with single nuclide sources.

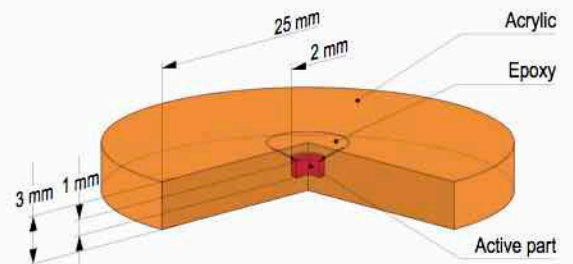
## Reference and Calibration Sources — OSGI-P

$^{22}\text{Na}$ ,  $^{54}\text{Mn}$ ,  $^{57}\text{Co}$ ,  $^{60}\text{Co}$ ,  $^{65}\text{Zn}$ ,  $^{86}\text{Y}$ ,  $^{109}\text{Cd}$ ,  $^{113}\text{Sn}$ ,  $^{133}\text{Ba}$ ,  $^{134}\text{Cs}$ ,  $^{137}\text{Cs}$ ,  
 $^{139}\text{Ce}$ ,  $^{152}\text{Eu}$ ,  $^{153}\text{Gd}$ ,  $^{207}\text{Bi}$ ,  $^{210}\text{Pb}$ ,  $^{228}\text{Th}$ ,  $^{241}\text{Am}$ ,  $^{243}\text{Am}$

Reference and calibration sources are used for efficiency and energy calibration of gamma-spectrometric equipment, testing of ionizing chambers and scintillation counters. Robust design is suitable for "in field" calibrations and tests.

Radionuclide is deposited on active part made of light ceramic pellet. Dimensions of active part are 2 mm in diameter and 1 mm in height with tolerance on activity -10...+30 %. Active part is mounted in center of acrylic capsule and sealed with epoxy resin. Source is a transparent disc with diameter 25 mm and height 3 mm. On surface of the source are engraved radiation sign, producer logo, element symbol with atomic weight, serial number and production month. Sources meet ISO 2919 requirements to sealed radiation sources. Source type is recommended for "in field" and laboratory applications.

ISO classification: C34343.



# Dose Calibrator Gamma Standard Sources — DCGS

$^{22}\text{Na}$ ,  $^{57}\text{Co}$ ,  $^{60}\text{Co}$ ,  $^{133}\text{Ba}$ ,  $^{137}\text{Cs}$

Sealed gamma radiation sources type DCGS are purposed for suitability checks of well detector ionizing chambers, also known as dose-calibrators. Sources are made in PE vials with active part of epoxy resin with homogenized with radionuclide solution. Volume of the active part is 20 ml for type 1 and 10 ml for type 2. Each nuclide is color coded. Sources meet requirements of ISO 2919 to sealed radiation sources. ISO classification: C23222.

