

# Multimodal Sources



ISOTOPE PRODUCTS LABORATORIES  
Gd-153  
100  $\mu$ Ci  
3.7 MBq  
1 Mar 10  
1414-58-18  
RADIOACTIVE MATERIAL

ISOTOPE PRODUCTS LABORATORIES  
Na-22  
10  $\mu$ Ci  
370 kBq  
1 Mar 10  
1414-60-7  
RADIOACTIVE MATERIAL

ISOTOPE PRODUCTS LABORATORIES  
Na-22  
10  $\mu$ Ci  
370 kBq  
1 Mar 10  
1414-50-7  
RADIOACTIVE MATERIAL



ISOTOPE PRODUCTS LABORATORIES  
Na-22  
100  $\mu$ Ci  
3.7 MBq  
1 Mar 10  
1414-40-2  
RADIOACTIVE MATERIAL

# Sources for Multimodal Imaging

Eckert & Ziegler Isotope Products offers a range of multimodal sources for hybrid PET/CT and SPECT/CT imaging. These sources can be used as fiducial markers to improve image coregistration in sequential scans with standalone scanners of different modalities, or for anatomical or position marking with visibility in both images of a hybrid scanner. CT targets in the clinical sources are designed to mimic cortical bone density with 120 kVp x-rays, and the MMS04 pre-clinical fiducial marker has an active element with density optimized for visibility at 50 kVp without artifacts. The new model MMS10 source even adds MRI visibility to the portfolio, as the only sealed-source fiducial marker available anywhere with visibility in three modalities. Have a specialized application? Many of these designs can be customized – contact a customer service representative to design your own fiducial marker.

## Model MMS01 Specifications

**Capsule:** 1" x 0.25" (D x H)  
white Delrin

**Active dimensions:** 1mm x 1mm  
cylinder

**Suggested usage:**  
High-resolution PET point source or  
fiducial marker.

## Model MMS02 Specifications

**Capsule:** 1" x 0.25" (D x H)  
clear cast acrylic

**Active dimensions:**  
1.5mm x 1.5mm cylinder

**CT target:** 1/4" OD bone-equivalent  
ring (surrounds active element)

**Suggested usage:**  
Multimodal fiducial marker for clinical  
image coregistration.

## Model MMS03 Specifications

**Capsule:** 1" x 0.25" (D x H)  
clear cast acrylic with etched  
crosshairs for laser alignment

**Active dimensions:** 1mm diameter  
sphere

**CT target:** 2mm OD bone-equivalent  
ring (surrounds active element)

**Suggested usage:**  
Multimodal fiducial marker for  
clinical image coregistration.

## Model MMS04 Specifications

**Capsule:** 3 x 3 x 8mm  
clear acrylic with Delrin plug

**Active dimensions:** 1 x 0.5mm  
(D x H) cylinder

**CT target:** Active element is  
CT-visible

**Suggested usage:**  
Multimodal fiducial marker for  
image coregistration, recommended  
for small animal studies or other situations  
where a small source capsule is needed.

## Model MMS06 Specifications

**Capsule:** 1" x 0.25" (D x H)  
clear cast acrylic

**Active dimensions:** 0.25mm  
diameter sphere

**Suggested usage:**  
High-resolution point source or spot  
marker for use with scanners with  
resolution better than 3mm.

## Model MMS09 Specifications

**Capsule:** 1 x 1 x 1 cm cast acrylic  
cube

**Active dimensions:** 0.25mm sphere  
centered in capsule

**Suggested usage:**  
NEMA NU4 resolution testing.

## Model MMS10 Specifications

**Capsule:** 0.5" (12.7mm) dia x 0.23"  
(5.8mm) thick cast acrylic

**Active element:** .315" (8mm) dia gel  
with CT contrast MR/CT/radionuclide  
trimodal fiducial marker

**Suggested usage:**  
For clinical imaging only. Not recommended  
for high-resolution preclinical  
scanners.



### Model MMS11 Specifications

**Capsule:** 0.157" (4mm) dia x 2.06" (52.3mm) long cast acrylic rod with threaded end

**Active dimensions:** 1mm dia x 0.5mm T

**Nuclide:** Na-22, 20 uCi (740 kBq)

**Suggested usage:**

Dedicated source for Siemens Inveon Scanner

### Model MMS12 Specifications

**Capsule:** 1.75" OD x 2.36"L, polycarbonate hollow cylinder, with 4 imbedded point sources.

**Active dimensions:** 0.5mm dia x 1mm thick point, 4 places

**Suggested usage:**

Dedicated source for Siemens Inveon Scanner

### Model MMS13 Specifications

**Capsule:** 1.75" OD x 2.36"L, polycarbonate hollow cylinder, with 4 imbedded point sources.

**Active dimensions:** 0.5mm dia x 1mm thick point, 4 places

**Suggested usage:**

Dedicated source for Siemens Inveon Scanner

### Model MMS15 Specifications

**Capsule:** 0.63" OD x 1.49"L, polycarbonate hollow cylinder, with 4 imbedded point sources.

**Active dimensions:** 0.5mm dia x 1mm thick point 4 places

**Suggested usage:**

Dedicated source for Siemens Inveon Scanner

