

Accuracy

All solutions are prepared to a tolerance +/- 15% of the requested activity. Each solutions will be supplied with a DAkkS certificate. For DAkkS-accredited calibration, the uncertainty value of the measured activity value is typically 3-5% at the 95% confidence limit (k=2) for certain nuclides in Eckert & Ziegler Nuclitec DAkkS Scope of Accreditation. Please inquire with an Eckert & Ziegler Nuclitec customer service representative regarding the specific measurement uncertainty limit for each nuclide.

Purity

Radionuclidic impurities are specified on the Certificate of Calibration. For applications that require specific radionuclidic purity requirements, please contact customer service. For many alpha emitting nuclides and transuranics, radionuclidic purity is not always possible due to short lived daughters, and it is typical for isotopic ratios to vary greatly from batch to batch. Chemical purity is not determined and is not reported on the Certificate of Calibration. Please contact customer service for special requirements.

Packaging

Radionuclide solutions packaging is offered in a variety of vials and ampoules. Please specify activity, and fill volume. Fill volumes must be at least 50% of the capacity of the chosen vial. There may be an extra charge for some options. Customer supplied vials on all solution orders are not guaranteed by EZN to be leak proof during shipment, and EZN will not honor return or credit requests for leaking solutions in customer supplied vials. An extra charge for shielding high activity beta and gamma emitter solutions may apply. Please contact customer service for details.

Container Configuration	Material	Volume	Drawing
V-Vial	Glass	5 mL	VZ-4339-001
Flame Sealed Ampoule (FSA)	Glass	5 mL	VZ-1719-002
P6-Vial	Glass	10 mL	VZ-1725-001
Glass Bottle	Glass	20 mL	VZ-4415-001
Glass Bottle	Glass	50 mL	VZ-4409-001

Kautex Bottle	Plastic	100 mL	VZ-2028-001
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Carrier

Carrier materials will be added when considered appropriate or on request. Usually solutions are supplied as carrier added solutions to prevent preferential adherence of the radionuclide to the solution container walls, thus keeping the radionuclide homogeneously mixed in the solution.

Non carrier added solutions are available on request, however, this must be stated in writing on your Purchase Order agreement. It is agreed to accept such a solution "as is", including the lack of stability of the stated radionuclide concentration. Solution returns of this type will not be accepted.

Nuclide	Product code	Container type	Activity range	Fill volume (ml)	Chemical composition
Am-241	AM1S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	1M HCl
Am-241	AM1S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	1M HCl
Am-241	AM1S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	1M HCl
Ba-133	BA3S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Ba-133	BA3S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Ba-133	BA3S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
C-14	C14S1719BD	glass FSA	370 Bq – 1 MBq	2,5 – 5	0,1M NaOH
C-14	C14S4339BD	glass v-vial	370 Bq – 1 MBq	2,5 – 5	0,1M NaOH
C-14	C14S2028BD	Kautex bottle	370 Bq – 1 MBq	50 – 100	0,1M NaOH

Cd-109	CD9S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Cd-109	CD9S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Cd-109	CD9S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Ce-139	CE9S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Ce-139	CE9S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Ce-139	CE9S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,5M HCl
Co-57	CO7S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Co-57	CO7S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Co-57	CO7S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Co-60	CO0S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Co-60	CO0S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Co-60	CO0S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Cr-51	CR1S1719BD	glass FSA	370 Bq – 1 MBq	2,5 – 5	0,5M HCl
Cr-51	CR1S4339BD	glass v-vial	370 Bq – 1 MBq	2,5 – 5	0,5M HCl
Cr-51	CR1S2028BD	Kautex bottle	370 Bq – 1 MBq	50 – 100	0,5M HCl

Cs-137	CS7S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Cs-137	CS7S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Cs-137	CS7S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Eu-152	EU2S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Eu-152	EU2S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Eu-152	EU2S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,5M HCl
H-3	H3S1719BD	glass FSA	370 Bq – 1 MBq	2,5 – 5	tritiated water
H-3	H3S4339BD	glass v-vial	370 Bq – 1 MBq	2,5 – 5	tritiated water
H-3	H3S2028BD	Kautex bottle	370 Bq – 1 MBq	50 – 100	tritiated water
Hg-203	HG3S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	1M HCl
Hg-203	HG3S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	1M HCl
Hg-203	HG3S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	1M HCl
Mn-54	MN4S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Mn-54	MN4S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Mn-54	MN4S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,5M HCl

Na-22	NA2S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	H2O
Na-22	NA2S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	H2O
Na-22	NA2S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	H2O
Ni-63	NI3S1719BD	glass FSA	370 Bq – 1 MBq	2,5 – 5	0,1M HCl
Ni-63	NI3S4339BD	glass v-vial	370 Bq – 1 MBq	2,5 – 5	0,1M HCl
Ni-63	NI3S2028BD	Kautex bottle	370 Bq – 1 MBq	50 – 100	0,1M HCl
Pb-210	PB0S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	1M HNO3
Pb-210	PB0S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	1M HNO3
Pb-210	PB0S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	1M HNO3
Pm-147	PM7S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Pm-147	PM7S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Pm-147	PM7S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,5M HCl
Sn-113	SN3S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	4M HCl
Sn-113	SN3S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	4M HCl
Sn-113	SN3S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	4M HCl

Sr-85	SR5S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Sr-85	SR5S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,5M HCl
Sr-85	SR5S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,5M HCl
Sr-90	SR0S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Sr-90	SR0S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Sr-90	SR0S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Tc-99	TC9S1719BD	glass FSA	370 Bq – 1 MBq	2,5 – 5	H ₂ O
Tc-99	TC9S4339BD	glass v-vial	370 Bq – 1 MBq	2,5 – 5	H ₂ O
Tc-99	TC9S2028BD	Kautex bottle	370 Bq – 1 MBq	50 – 100	H ₂ O
Y-88	Y88S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Y-88	Y88S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Y-88	Y88S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl
Zn-65	ZN5S1719BD	glass FSA	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Zn-65	ZN5S4339BD	glass v-vial	370 Bq – 3,7 MBq	2,5 – 5	0,1M HCl
Zn-65	ZN5S2028BD	Kautex bottle	370 Bq – 3,7 MBq	50 – 100	0,1M HCl

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Solutions manufactured by E&Z Isotope Products/CA/USA

Accuracy

All solutions are prepared to a tolerance +/- 15% of the requested activity. Each calibration is traceable to NIST, and many solutions can be supplied with a DAkkS certificate as well. The uncertainty value of the measured activity value for a NIST-traceable calibration can theoretically be as low as $\pm 3\%$ at the 99% confidence level ($k=2.58$) but will be no greater than $\pm 5\%$ unless otherwise noted elsewhere in our product information. For DAkkS-accredited calibrations, the uncertainty value of the measured activity value is typically 3.0-3.5% at the 95% confidence limit ($k=2$) for certain nuclides in Eckert & Ziegler Isotope Products DAkkS Scope of Accreditation. Please inquire with an Eckert & Ziegler Isotope Products customer service representative regarding the specific measurement uncertainty limit for each nuclide.

Purity

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Packaging

Radionuclide solutions packaging is offered in a variety of vials and ampoules. Please specify activity, and fill volume. Fill volumes must be at least 50% of the capacity of the chosen vial. There may be an extra charge for some options. Customer supplied vials on all solution orders are not guaranteed by EZIP to be leak proof during shipment, and EZIP will not honor return or credit requests for leaking solutions in customer supplied vials. An extra charge for shielding high activity beta and gamma emitter solutions may apply. Please contact customer service for details.

Container Configuration	Material	Volume	Dimensions Outer Diameter x Length
V-Vial	Glass	1 mL	0.55" x 1.93" (14 mm x 49 mm)
V-Vial	Glass	5 mL	0.83" x 1.93" (21 mm x 62 mm)
V-Vial	Glass	10 mL	1.0" x 2.9" (25 mm x 74 mm)

Serum Vial	Glass	10 mL	0.98" x 2.13" (25 mm x 54 mm)
Serum Vial	Glass	20 mL	1.18" x 2.24" (30 mm x 57 mm)
Flame Sealed Ampoule (FSA)	Glass	1 mL	0.41" x 2.64" (10.4 mm x 67 mm)
Flame Sealed Ampoule (FSA)	Glass	5 mL	0.65" x 3.31" (16.5 mm x 84 mm)
Flame Sealed Ampoule (FSA)	Glass	10 mL	0.75" x 4.21" (19 mm x 107 mm)
Flame Sealed Ampoule (FSA)	Glass	20 mL	0.89" x 5.12" (22.6 mm x 130 mm)
Flame Sealed Ampoule (FSA)	Glass	50 mL	1.12" x 7.0" (28.5 mm x 178 mm)
V-Vial	Polypropylene	2 mL	0.51" x 1.83" (12.7 mm x 46.5 mm)
V-Vial	Polypropylene	5 mL	0.80" x 2.34" (20.3 mm x 59.4 mm)
Plastic Bottle	Polypropylene	125 mL	2.0" x 4.0" (50.8 mm x 101.6 mm)
Plastic Bottle	Polypropylene	1000 mL	3.5" x 8.0" (88.9 mm x 203.2 mm)

Carrier

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Nuclide	Product code	Activity range	Remark
Al-26	7026		Nuclide not available
Ag-108m	7108	370 Bq – 370 kBq	rare isotope – limited stock
Ag-110m	7110	370 Bq – 3,7 MBq	available, but not in stock – higher activities available on request
Am-241	7241	370 Bq – 3,7 MBq	higher activities available on request
Am-243	7243	370 Bq – 3,7 MBq	
Ba-133	7133	370 Bq – 3,7 MBq	higher activities available on request
Bi-207	7207	370 Bq – 37 kBq	on request
C-14	7014	370 Bq – 3,7 MBq	higher activities available on request
Ca-45	7045	370 Bq – 3,7 MBq	available, but not in stock – higher activities available on request
Cd-109	7109	370 Bq – 3,7 MBq	higher activities available on request
Ce-139	7139	370 Bq – 3,7 MBq	available, but not always in stock – higher activities available on request
Cf-252	7252	370 Bq – 370 kBq	
Cl-36	7036	370 Bq – 3,7 MBq	
Cm-244	7244	370 Bq – 3,7 MBq	higher activities available on request

Co-56	7056		Nuclide not available
Co-57	7057	370 Bq – 3,7 MBq	higher activities available on request
Co-58	7058		available from EZA only, on request
Co-60	7060	370 Bq – 3,7 MBq	higher activities available on request
Cr-51	7051	370 Bq – 3,7 MBq	higher activities available on request
Cs-134	7134	370 Bq – 3,7 MBq	higher activities available on request
Cs-137	7137	370 Bq – 3,7 MBq	higher activities available on request
Eu-152	7152	370 Bq – 3,7 MBq	higher activities available on request
Eu-154	7154	370 Bq – 3,7 MBq	higher activities available on request
Eu-155	7155	370 Bq – 3,7 MBq	higher activities available on request
Fe-55	7055	185 kBq – 3,7 MBq	higher activities available on request
Fe-59	7059	370 Bq – 3,7 MBq	available, but on request – higher activities available
Gd-148	7148		Nuclide not available
Gd-153	7153	370 Bq – 3,7 MBq	higher activities available on request
Ge-68	7068	370 Bq – 3,7 MBq	higher activities available on request
H-3	7003	370 Bq – 3,7 MBq	higher activities available on request

Hg-203	7203	370 Bq – 3,7 MBq	higher activities available on request
Ho-166m	7166	370 Bq – 3,7 MBq	in stock, please check availability – higher activities available on request
I-125	7125	18,5 kBq – 3,7 MBq	higher and lower activities available on request
I-129	7129	370 Bq – 3,7 MBq	higher activities available on request
I-131 (Real)			available from EZA only (product code 8131)
Ir-192	7192	3,7 kBq – 3,7 MBq	Ammonium Hexachloroiridate (NH ₄) ₂ IrCl ₆ – higher and lower activities available on request
Mn-54	7054	370 Bq – 3,7 MBq	higher activities available on request
Na-22	7022	370 Bq – 3,7 MBq	higher activities available on request
Nb-95	7195		Nuclide not available
Ni-59	7159		Nuclide not available
Ni-63	7063	370 Bq – 3,7 MBq	higher activities available on request
Np-237	7237	370 Bq – 37 kBq	lead time on request
P-32	7032	37 kBq – 3,7 MBq	lead time on request, higher and lower activities available on request
Pb-210	7210	370 Bq – 3,7 MBq	lead time on request
Pm-147	7147	18,5 kBq – 3,7 MBq	higher and lower activities available on request

Po-209	7209	370 Bq – 3,7 kBq	rare isotope, limited stock – higher activity available on request
Po-210	7310	370 Bq – 3,7 MBq	lead time on request, higher activities available on request
Pu-236	8236	100 Bq, 370 Bq, 1 kBq	available from EZA only, limited stock, may be backordered
Pu-238	7238	3,7 kBq – 3,7 MBq	higher and lower activities available on request
Pu-239	7239	3,7 kBq – 3,7 MBq	higher and lower activities available on request
Pu-240	7240	max. 37 kBq/order	
Pu-241	7341	3,7 kBq – 3,7 MBq	lower activities available on request
Pu-242	7242	370 Bq – 3,7 MBq	
Ra-226	7226	370 Bq – 370 kBq	available, but check lead time
Ra-228	7328		available from EZA only
Ru-106	7106	3,7 kBq – 3,7 MBq	available, but check lead time – higher and lower activities available on request
S-35	7035	37 kBq – 3,7 MBq	available, but check lead time – higher and lower activities available on request
Sb-124	7124	3,7 kBq – 3,7 MBq	higher and lower activities available on request
Sb-125	7225	3,7 kBq – 3,7 MBq	higher and lower activities available on request
Sc-46	7046		Nuclide not available
Se-75	7075	3,7 kBq – 3,7 MBq	lower activities available on request

Si-32	7132	max. 37 kBq/order	rare nuclide, very limited availability
Sm-151	7151	18,5 kBq – 3,7 MBq	available, but check lead time – higher and lower activities available on request
Sn-113	7113	370 Bq – 3,7 MBq	higher activities available on request
Sr-85	7085	370 Bq – 3,7 MBq	higher activities available on request
Sr-89	7089	37 kBq – 3,7 MBq	available, but check lead time – higher and lower activities available on request
Sr-90	7090	370 Bq – 3,7 MBq	higher activities available on request
Tc-95m	7295		Nuclide not available
Tc-99	7099	370 Bq – 3,7 MBq	higher activities available on request
Te-123m	7123	370 Bq – 3,7 MBq	higher activities available on request
Th-228	7228	370 Bq – 185 kBq	nuclide available, but very limited – higher activity available on request
Th-229	7229	370 Bq – 370 kBq	very rare nuclide, limited stock
Th-230	7230	370 Bq – 37 kBq	higher activities available on request
Th-232	7232	370 Bq – 37 kBq	740 Bq/ml
Tl-204	7204	370 Bq – 3,7 MBq	available, but check lead time – higher activities available on request
U-232	7432	370 Bq – 37 kBq	with daughters in equilibrium

U-233	7233	370 Bq – 370 kBq	
U-235	7235	370 Bq – 3,7 kBq	97% enrichment
U-236	7336	370 Bq – 3,7 kBq	
U-238 (Opt. A)	7438	370 Bq – 37 kBq	0,2% depleted, on request
U-238 (Opt. B)	7338	370 Bq – 185 kBq	U-nat., max. 185 kBq in 100ml plastic bottle
Y-88	7088	370 Bq – 3,7 MBq	higher activities available on request
Zn-65	7065	370 Bq – 3,7 MBq	higher activities available on request
Zr-95	7095	370 Bq – 3,7 MBq	on request – higher activities available on request

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Solutions manufactured by Eckert & Ziegler Analytics/GA/USA

All liquid radionuclide standards are prepared gravimetrically from NIST traceable solutions. After preparation all standards are QC tested with our calibrated counting system.

Analytics will provide relative expanded uncertainties (expressed in % of value) or expanded uncertainties (expressed in same units as the certified value) with a coverage factor of 2, which approximates 95% confidence level for all standards. Uncertainties are estimated using the guidance in NIST Technical Note 1297, “Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results”.

Custom

Custom liquid standards are available in a wide range of activities and volumes as single radionuclide standards, or as custom mixtures. Custom liquid standards are available in 5-, 10-, 20- or 50-ml flame-sealed glass vials.

Liquid standards are also available in larger volume flame-sealed reagent bottles of 100-, 250-, 500- and 1000-ml volumes. The storage bottles have a ground glass cap to prevent evaporation and to reseal the standard for storage between calibrations.

Nuclide	Product code	Activity range	Chemical form	Remark
Ac-227	8227	370 Bq – 3,7 MBq	Actinium Nitrate in 1M HNO ₃	check for availability
Am-241	8241	370 Bq – 740 kBq	Americium Chloride in 1M HCl	
Am-243	8243	on request	Americium Chloride in 1M HCl	
Ba-133	8133	3,7 kBq – 1,85 MBq	Barium Chloride in 0.1M HCl	
Bi-207	8207	on request	Bismuth Chloride in 1M HCl	
C-14	8014	37 kBq – 370 kBq	C-14 labeled Glucose in H ₂ O	
C-14	8014C	37 kBq – 370 kBq	Sodium Carbonate in 0.1M NaOH	
C-14	8014T	37 kBq – 370 kBq	Toluene	
Ca-45	8045	37 kBq – 3,7 MBq	Calcium Chloride in 0.1M NaOH	check lead time
Cd-109	8109	37 kBq – 3,7 MBq	Cadmium Chloride in 0.1M HCl	
Ce-139	8139	370 Bq – 3,7 MBq	Cerium Chloride in 0.1M HCl	check lead time
Ce-141	8141	370 Bq – 1,85 MBq		check lead time
Cl-36	8036	370 Bq – 37 kBq	Sodium Chloride in 0.0005M NaOH	
Cm-244	8244	37 Bq – 3,7 kBq	Curium Chloride in 1M HCl	

Co-56	8056			nuclide not available
Co-57	8057	370 Bq – 3,7 MBq	Cobalt Chloride in 0.1M HCl	
Co-58	8058	3,7 kBq – 185 kBq	Cobalt Chloride in 0.1M HCl	
Co-60	8060	370 Bq – 3,7 MBq	Cobalt Chloride in 0.1M HCl	
Cr-51	8051	370 Bq – 7,4 MBq	Chromium Chloride in 1M HCl	
Cs-134	8134	370 Bq – 3,7 MBq	Cesium Chloride in 0.1M HCl	
Cs-137	8137	370 Bq – 3,7 MBq	Cesium Chloride in 0.1M HCl	
Eu-152	8152	3,7 kBq – 1,85 MBq	Europium Chloride in 0.1M HCl	
Eu-154	8154	on request	Europium Chloride in 0.1M HCl	
Eu-155	8155	on request	Europium Chloride in 0.1M HCl	
Fe-55	8055	3,7 kBq – 3,7 MBq	Ferric Chloride in 0.1M HCl	
Fe-59	8159	370 Bq – 3,7 MBq	Nickel Chloride in 0.1M HCl	check lead time
Gd-148	8148	on request	Gadolinium Chloride in 0.1M HCl	
Gd-153	8153	on request	Gadolinium Chloride in 0.1M HCl	
Ge-68	8068	on request	Germanium Chloride in 1M HCl	

H-3	8003	3,7 kBq – 3,7 MBq	Tritiated Water	
H-3	8003G	3,7 kBq – 3,7 MBq	Glucose	
Hg-203	8203	3,7 kBq – 185 kBq	Mercury Nitrate in 0.5M HNO ₃	
Ho-166m	8166	on request	Holmium Chloride in 0.1M HCl	check lead time
I-125	8125	7,4 kBq – 3,7 MBq	Sodium Iodide in 0.1M NaOH + 0.006M Na ₂ SO ₃	
I-129	8129	370 Bq – 3,7 kBq	Sodium Iodide in 0.1M NaOH + 0.006M Na ₂ SO ₃	
I-131 (real)	8131	3,7 kBq – 3,7 MBq	Sodium Iodide in 0.1M NaOH + 0.006M Na ₂ SO ₃	
Mn-54	8054	3,7 kBq – 1,85 MBq	Manganese Chloride in 0.1M HCl	
Na-22	8022	3,7 kBq – 1,85 MBq	Sodium Chloride in 0.1M HCl	
Nb-93m	8093	on request	Niobium Nitrate in 0.5M HNO ₃ + 0.01M HF	
Ni-63	8063	3,7 kBq – 37 kBq	Nickel Chloride in 0.1M HCl	
Np-237	8237	on request	Neptunium Chloride in 4M HCl + 50 µg/ml Oxalic Acid	check lead time
P-32	8032	3,7 kBq – 29,6 MBq	Phosphoric Acid in 0.1M HCl	
Pa-231	8231	on request	Protactinium Nitrate in 8M HNO ₃ + 0.5M HF	
Pb-210	8210	370 Bq – 37 kBq	Lead Nitrate in 1M HNO ₃	check lead time

Pm-147	8147	3,7 kBq – 185 kBq	Promethium Chloride in 0.1M HCl	
Po-209	8209	3,7 kBq	Polonium Chloride in 2M HCl	limited stock
Pu-236	8236	on request	Plutonium Nitrate in 3M HNO ₃	100 Bq, 370 Bq or 1 kBq in 5 ml FSA
Pu-238	8238	370 Bq – 37 kBq	Plutonium Nitrate in 3M HNO ₃	
Pu-239	8239	370 Bq – 37 kBq	Plutonium Nitrate in 3M HNO ₃	
Pu-240	8240	370 Bq – 37 kBq	Plutonium Nitrate in 3M HNO ₃	
Pu-241	8341	on request	Plutonium Nitrate in 3M HNO ₃	
Pu-242	8242	on request	Plutonium Nitrate in 3M HNO ₃	
Ra-226	8226	370 Bq – 370 kBq	Radium Chloride in 0.1M HCl	check lead time
Ra-228	8328	max. 37 kBq	Radium Chloride in 0.1M HCl	with DAkKS certificate only
Ru-106	8106	on request	Ruthenium Chloride in 6M HCl	check lead time
S-35	8035	3,7 kBq – 3,7 MBq	Sodium Sulfate in H ₂ O	check lead time
Sb-125	8225	3,7 kBq – 1,85 MBq	Antimony Chloride in 6M HCl	
Sc-46	8046			nuclide not available
Se-75	8075	on request		

Si-32	8132	370 Bq – 37 kBq	Sodium Silicate in 0.1M NaOH	limited availability
Sm-151	8151	on request	Samarium Chloride in 0.1M HCl	check lead time
Sn-113	8113	on request	Hexachlorostannate (IV) in 4M HCl	
Sr-85	8085	3,7 kBq – 1,85 MBq	Strontium Chloride in 0.1M HCl	
Sr-89	8089	3,7 kBq – 1,85 MBq	Strontium Chloride in 0.1M HCl	check lead time
Sr-90	8090	3,7 kBq – 1,85 MBq	Strontium Chloride in 0.1M HCl	
Tc-99	8099	3,7 kBq – 1,85 MBq	Ammonium Pertechnetate in 0.001M NaOH	
Th-228	8228	370 Bq – 37 kBq	Thorium Nitrate in 0.5M HNO ₃	check lead time
Th-229	8229	on request	Thorium Nitrate in 0.5M HNO ₃	very limited stock
Th-230	8230	370 Bq – 37 kBq	Thorium Nitrate in 0.5M HNO ₃	
Th-232 (Th-Nat)	8232	on request	Thorium Nitrate in 0.5M HNO ₃	>higher activity requires more volume
Tl-204	8204	370 Bq – 185 kBq	Thallium Chloride in 0.1M HCl	check lead time
U-232	8332	370 Bq – 37 kBq	Uranyl Nitrate in 1M HNO ₃	with daughters in equilibrium
U-233	8233	37 Bq – 37 kBq	Uranyl Nitrate in 1M HNO ₃	

U-235	8235	on request	Uranyl Nitrate in 1M HNO ₃	97% enrichment
U-236	8336	370 Bq – 3,7 kBq	Uranyl Nitrate in 1M HNO ₃	
U-238 (Opt A)	8438	on request	Uranyl Nitrate in 1M HNO ₃	0,5 – 0,02% depleted
U-238 (Opt B)	8338	370 Bq – 185 kBq	Uranyl Nitrate in 1M HNO ₃	natural U, max. 185 kBq in a 100 ml plastic bottle
Y-88	8088	3,7 kBq – 370 kBq	Yttrium Chloride in 0.1M HCL	
Zn-65	8065	3,7 kBq – 1,85 MBq	Zinc Chloride in 0.1M HCl	

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Stock Solutions from Eckert & Ziegler Analytics/GA/USA

Certain longer-lived liquid radionuclide standards are available from stock providing rapid delivery. Stock liquids are available in 5-ml flame-sealed glass vials at activities specified in the Radioactive Liquid Standards.

Nuclide	Product code	Activity	Chemical Form
Am-241	8241-5FSA-18,5KBQ	18,5 kBq	Americium Chloride in 1M HCl
Am-241	8241-5FSA-37KBQ	37 kBq	Americium Chloride in 1M HCl
Am-241	8241-5FSA-185KBQ	185 kBq	Americium Chloride in 1M HCl
C-14	8014N-5FSA-4KBQ	4 kBq	Sodium Carbonate in 0.1M NaOH

C-14	8014N-5FSA-37KBQ	37 kBq	Sodium Carbonate in 0.1M NaOH
C-14	8014G-5FSA-37KBQ	37 kBq	Glucose
Cs-137	8137-5FSA-37KBQ	37 kBq	Cesium Chloride in 0.1M HCl
Cs-137	8137-5FSA-185KBQ	185 kBq	Cesium Chloride in 0.1M HCl
H-3	8003-5FSA-37KBQ	37 kBq	Tritiated Water
H-3	8003-5FSA-185KBQ	185 kBq	Tritiated Water
I-129	8129-5FSA-4KBQ	4 kBq	Sodium Iodide in 0.01M NaOH + 0.006M Na ₂ SO ₃
Ni-59	8059-5FSA-3,7KBQ	3,7 kBq	
Pu-239	8239-5FSA-37KBQ	37 kBq	
Ra-226	8226-5FSA-4KBQ	4 kBq	Radium Chloride in 0.1M HCl
Ra-228	8328-5FSA-370BQ-D	370 Bq	Radium Chloride in 0.1M HCl
Ra-228	8328-5FSA-1,25KBQ-D	1,25 kBq	Radium Chloride in 0.1M HCl
Ra-228	8328-5FSA-3,7KBQ-D	3,7 kBq	Radium Chloride in 0.1M HCl
Sr-90	8090-5FSA-37KBQ	37 kBq	Strontium Chloride in 0.1M HCl
Tc-99	8099-5FSA-37KBQ	37 kBq	Ammonium Pertechnetate in 0.001M NaOH
Th-229	8229-5FSA-370BQ	370 Bq	
Th-230	8230-5FSA-4KBQ	4 kBq	
U-232	8332-5FSA-4KBQ	4 kBq	
U-233	8233-5FSA-18KBQ	18 kBq	Uranyl Nitrate in 1M HNO ₃

U-238 (Opt B)	8338-5FSA-1,85KBQ	1,85 kBq	
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Low Level Tracers from Eckert & Ziegler Analytics/GA/USA

Low-level radioactive tracer solutions are available in flame-sealed reagent bottles with a ground glass cap to minimize evaporative losses. These samples are particularly useful for radiochemical measurements, which require a spike for yield determinations. These solutions may also be used as control samples for various analytes.

Nuclide	Catalog	Available volumes [ml]	Available activity [Bq/ml]	Chemical form and carrier
Am-241	8241	100 – 1000	0,1 to 1	in 1M HCl, Carrier free
Am-243	8243	100 – 1000	0,1 to 1	in 1M HCl, Carrier free
Pu-236	8236	100 – 1000	0,1 to 1	in 3M HNO ₃ , Carrier free
Pu-238	8238	100 – 1000	0,1 to 1	in 3M HNO ₃ , Carrier free
Pu-239	8239	100 – 1000	0,1 to 1	in 3M HNO ₃ , Carrier free
Pu-242	8242	100 – 1000	0,1	in 3M HNO ₃ , Carrier free
Ra-226	8226	100 – 1000	0,1 to 1	Ra(II) in 0.1M HCl, 30 mg/g Ba
Ra-228	8328	100 – 1000	0,1 to 1	Ra(II) in 0.1M HCl, 30 mg/g Ba
Sr-90	8090	100 – 1000	0,1 to 1	Sr(II) in 0.1M HCl, 30 mg/g Sr
Tc-99	8099	100 – 1000	0,1 to 1	Tc(VII) in 0.001M NaOH, Carrier free

Th-229	8229	100 – 1000	0,1 to 1	Th(IV) in 0,5M HNO ₃ , Carrier free
Th-230	8230	100 – 1000	0,1 to 1	Th(IV) in 0,5M HNO ₃ , Carrier free
Th-232 (nat)	8232	10 – 1000	0,1 to 1	Th(IV) in 0,5M HNO ₃ , Th- 228 is in equilibrium with Th-232
U-232	8332	100 – 1000	0,1 to 1	in 1M HNO ₃ , Carrier free
U-233	8233	100 – 1000	0,1 to 1	in 1M HNO ₃ , Carrier free
U-238 (U- nat)	8338	100 – 1000	0,1 to 1	in 1M HNO ₃ , consist of U- 234 + U-235 + U-238