

Fact Sheet: Sodium iodide [¹²⁴I] injection

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-Half-Life: 100.3 hours

This radiopharmaceutical is for diagnostic use only.

Sodium iodide [¹²⁴I] injection may be given as a small tracer dose to study radioiodine pharmacokinetics. An estimation of the thyroid uptake and the effective elimination half-life in the thyroid prior to radioiodine therapy is used for the calculation of the required therapeutic activity of iodine-131.

Whole Body Scintigraphy in the management of thyroid carcinoma.

Product Specification

Name

Sodium iodide [¹²⁴I] injection

Pharmaceutical form

Solution for injection

Activity concentration

37 MBq/mL at time and date of calibration

Radiochemical purity

> 95.0%

Radionuclidic purity

≥ 99.5%

pH and composition

7.0 – 10.0 // Sodium chloride, sodium hydrogen phosphate, disodium hydrogen phosphate, sodium thiosulphate, sodium hydroxide, water for injection

Storage

Store in the original packaging at controlled room temperature (< 25°C).

Expiry

96 hours from the time of calibration

Isotope

Iodine-124

Packaging

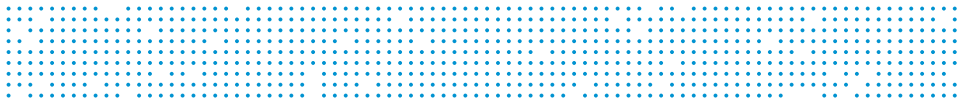
15 mL colourless type I glass single-dose vial

Calibration

Thursday 12:00 p.m. CET, same week

Availability

Dispensed every Monday // Only available for clinical trials or on patient name basis



Physical Data

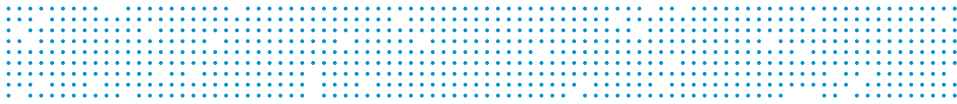
Rad. Type	Energy (keV)	Radiation Intensity (%)
E-AU-L	3.19	63
E-AU-K	22.7	8.3
B+	685.9	11
B+	973.6	12
G-AN	511	45.96
G	602.72	62.9
G	722.78	10.35
G	1509.49	3.13
G	1691.02	10.88

Decay Table

Physical half-life: 100.3 hours

Hours	0	1	2	3	4	5	6	7	8	9
0	1.000	0.993	0.986	0.979	0.973	0.966	0.959	0.953	0.946	0.940
10	0.933	0.927	0.920	0.914	0.908	0.902	0.895	0.889	0.883	0.877
20	0.871	0.865	0.859	0.853	0.847	0.841	0.836	0.830	0.824	0.818
30	0.813	0.807	0.802	0.796	0.791	0.785	0.780	0.774	0.769	0.764
40	0.758	0.753	0.748	0.743	0.738	0.733	0.728	0.723	0.718	0.713
50	0.708	0.703	0.698	0.693	0.689	0.684	0.679	0.674	0.670	0.665
60	0.661	0.656	0.652	0.647	0.643	0.638	0.634	0.629	0.625	0.621
70	0.616	0.612	0.608	0.604	0.600	0.596	0.591	0.587	0.583	0.579
80	0.575	0.571	0.567	0.563	0.560	0.556	0.552	0.548	0.544	0.541
90	0.537	0.533	0.530	0.526	0.522	0.519	0.515	0.512	0.508	0.505
100	0.501	0.498	0.494	0.491	0.487	0.484	0.481	0.477	0.474	0.471
110	0.468	0.464	0.461	0.458	0.455	0.452	0.449	0.446	0.442	0.439
120	0.436	0.433	0.430	0.427	0.424	0.422	0.419	0.416	0.413	0.410
130	0.407	0.404	0.402	0.399	0.396	0.393	0.391	0.388	0.385	0.383
140	0.380	0.377	0.375	0.372	0.370	0.367	0.365	0.362	0.360	0.357
150	0.355	0.352	0.350	0.347	0.345	0.343	0.340	0.338	0.336	0.333
160	0.331	0.329	0.326	0.324	0.322	0.320	0.318	0.315	0.313	0.311
170	0.309	0.307	0.305	0.303	0.300	0.298	0.296	0.294	0.292	0.290
180	0.288	0.286	0.284	0.282	0.280	0.278	0.277	0.275	0.273	0.271
190	0.269	0.267	0.265	0.263	0.262	0.260	0.258	0.256	0.255	0.253

To obtain a precalibration number, divide by the decay factor.
For a postcalibration number, multiply by the decay factor.



More Information

Freudenberg LS, Jentzen W, Petrich T, Frömke C, Marlowe RJ, Heusner T, Brandau W, Knapp WH, Bockisch A. Lesion dose in differentiated thyroid carcinoma metastases after rhTSH or thyroid hormone withdrawal: ^{124}I PET/CT dosimetric comparisons. *Eur J Nucl Med Mol Imaging*. 2010 Dec;37(12):2267-76. PMID: 20661558.

Freudenberg LS, Jentzen W, Stahl A, Bockisch A, Rosenbaum-Krumme SJ. Clinical applications of ^{124}I -PET/CT in patients with differentiated thyroid cancer. *Eur J Nucl Med Mol Imaging*. 2011 May;38 Suppl 1:S48-56. PMID: 21484380.

Jentzen W, Freudenberg L, Eising EG, Sonnenschein W, Knust J, Bockisch A. Optimized ^{124}I PET dosimetry protocol for radioiodine therapy of differentiated thyroid cancer. *J Nucl Med*. 2008 Jun;49(6):1017-23. PMID: 18483099.

Kemerink GJ, Visser MG, Franssen R, Beijer E, Zamburlini M, Halders SG, Brans B, Mottaghy FM, Teule GJ. Effect of the positron range of ^{18}F , ^{68}Ga and ^{124}I on PET/CT in lung-equivalent materials. *Eur J Nucl Med Mol Imaging*. 2011 May;38(5):940-8. PMID: 21287170.

Lopci E, Chiti A, Castellani MR, Pepe G, Antunovic L, Fanti S, Bombardieri E. Matched pairs dosimetry: $^{124}\text{I}/^{131}\text{I}$ metaiodobenzylguanidine and $^{124}\text{I}/^{131}\text{I}$ and $^{86}\text{Y}/^{90}\text{Y}$ antibodies. *Eur J Nucl Med Mol Imaging*. 2011 May;38 Suppl 1:S28-40. PMID: 21484381.

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