

Lutetium-177, nca

Chloride Solution ($^{177}\text{LuCl}_3$)

Method of production: Indirect production via neutron bombardment of Yb-176. Due to the production method, *nca* Lu-177, has high isotopic purity and doesn't contain any long-lived Lu-177m contamination compared to carrier added, Lu-177.

19;16;5;3;20;18;15;14

Characteristic

Description

Nuclide	Lu-177
Half-life	6.647 days
Decay Mode	Beta Decay
Maximum Beta Energy	0.498 MeV
Gamma Energies (main)	112.95 keV (6.17%) 208.37 keV (10.36%)
Chemical form	Lu ³⁺ in HCl solution
Solvent	0.04M HCl solution
Vial volume ¹	0.05 - 4mL
Vial activity ¹	10mCi - 500mCi at ART
Packaging	2mL conical bottom vial or 10mL flat bottom vial <small>Note: The final vial(s) to be used will be dependent on the outcome of the stability studies.</small>
Shelf-life	9 days from date of manufacture
ART	Reference to 12:00 (EST) from 0-7 days after production.

Test

Specification

Appearance	Clear & Colorless Solution
pH	1 - 2
Radionuclidic Purity	- $^{175}\text{Yb} \leq 0.01\%$ - Sum activity of others $\leq 0.01\%$
Radiochemical Purity	$\geq 99.0\%$ as $^{177}\text{LuCl}_3$
Radionuclidic ID	- 113 keV gamma - 208 keV gamma
Radiolabeling Yield	$\geq 99.0\%$ (based on radiolabeling with DOTA-derivate)
Specific Activity	81 - 108 Ci (3000 - 4000 GBq)/mg at Time of Manufacture
Activity per Vial	90-110% of ^{177}Lu activity stated on label at ART
Radioactivity Concentration ¹	0.95-1.2 Ci/mL at ART
Bacterial Endotoxin	≤ 17.5 EU/mL
Final sterilization	Sterilization through a 0.2 μm syringe filter.