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Toth et al.

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(54) **METHOD AND SYSTEM FOR RADIOISOTOPE GENERATION**

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(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

A system and a process for producing selected isotopic daughter products from parent materials characterized by the steps of loading the parent material upon a sorbent having a functional group configured to selectively bind the parent material under designated conditions, generating the selected isotopic daughter products, and eluting said selected isotopic daughter products from the sorbent. In one embodiment, the process also includes the step of passing an eluent formed by the elution step through a second sorbent material that is configured to remove a preselected material from said eluent. In some applications a passage of the material through a third sorbent material after passage through the second sorbent material is also performed.

15 Claims, 7 Drawing Sheets

	Sorbent				Mo Loading (1hr)					
ID	SAMMS Material	Ligand	Anion	Mass, mg	Soln pH	Vol	Mo99 C(initial) μ=Ci/mL	Mo99 C(final μ=Ci/mL	Mo99 μ=Ci/g SAMMS	Mo μ=g/g SAMMS
13-01	SES#1	Cu-EDA	Cl_2	40.1	4.91	5.9	1.24E-01	3.67E-03	17.65	95.61
13.02	Davisil635	Cu-EDA	SO_4	40.3	4.9	5.9	1.24E-01	9.87E-03	16.65	90.22
13.03	SES#1	Cu-EDA	SO_4	40.6	4.95	5.9	1.24E-01	2.23E-02	14.73	79.79
13-04	PhenC	Carbon	SO_4	39.9	5.01	5.9	1.24E-01	7.67E-02	6.93	37.57
13-05	Davisil635	Cu-EDA	SO_4	40.6	4.94	5.9	124E-01	2.06E-02	14.97	81.13
13-06	PhenC	Carbon	SO_4	40.8	5.02	5.9	1.24E-01	7.62E-02	6.85	37.11
13-07	Control	NA	NA	0	5.02	5.9	1.23E-01	1.24E-01	NA	NA