

**Extraction of Am(III) using a tripodal diglycolamide in room temperature
ionic liquids: A ‘green’ approach for radioactive waste processing**

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Electronic Supporting Information

1. Synthesis of T-DGA

The characterization data of tripodal diglycolamide was done by NMR and Mass Spectrometry. The results are given below.

^1H NMR (CDCl_3): δ 0.80-0.91 (39 H, m), 1.20-1.35 (74 H, m), 1.44-1.61 (12 H, m), 1.63-1.92 (6 H, m), 3.10-3.47 (34 H, m), 4.25-4.37 (12 H, m); MS (MALDI) m/z 1535.0 ($\text{M}+\text{H}$) $^+$, 1557.0 ($\text{M}+\text{Na}$) $^+$.

2. Solvent extraction studies

2.1 Stripping studies

Stripping data for three stage batch extraction data is presented in the following Table.

Table S-1: Stripping data for Am(III) using an extract made from 1.0×10^{-3} M T-DGA in $\text{C}_4\text{mim}^+.\text{NTf}_2^-$

Strippant	Cumulative % Am stripping with volume ratio (Aq. / org.) of 1		
	I stage	II stage	III stage
0.05 M EDTA + 1 M Guanidine carbonate	78.3	95.3	99
0.05 M EDTA + 1 M Guanidine carbonate	79.3	95.7	99.1
Buffer mixture (0.1 M Formic acid + 0.4 M Citric acid + 0.4 M hydrazine hydrate)	7.07	13.7	19.8

2.2 Temperature variation studies

Am(III) distribution data as a function of temperature are presented below.

Temperature (K)	C ₄ mim ⁺ .NTf ₂ ⁻	C ₆ mim ⁺ .NTf ₂ ⁻	C ₈ mim ⁺ .NTf ₂ ⁻
313	35.9	15.1	1.52
303	91.1	32.3	3.13
298	207	65.8	6.06
293	316	102.6	9.55

3. Time Resolved Laser Fluorescence Spectroscopy studies

