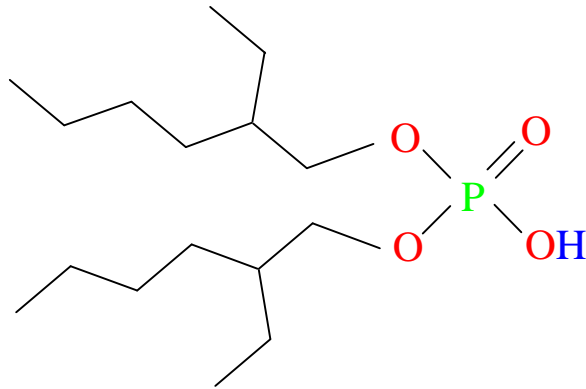


Eichrom's LN Series of Resins: Characterization and Novel Applications

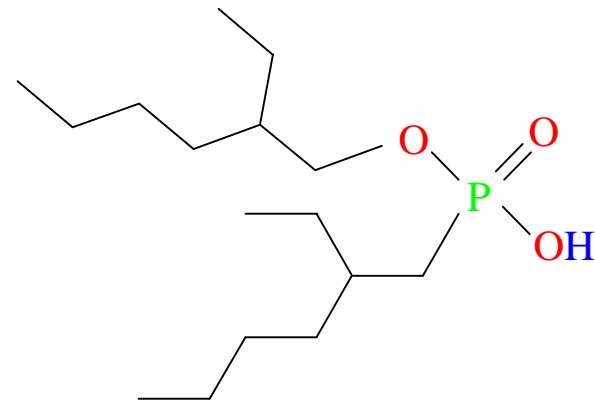
Phil Horwitz and Dan McAlister

PG Research Foundation, Inc.

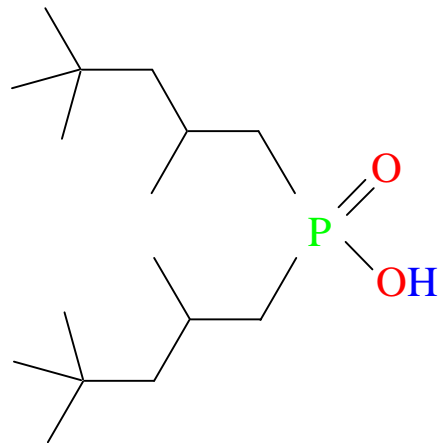
The LN Series of Resins



HDEHP (LN)



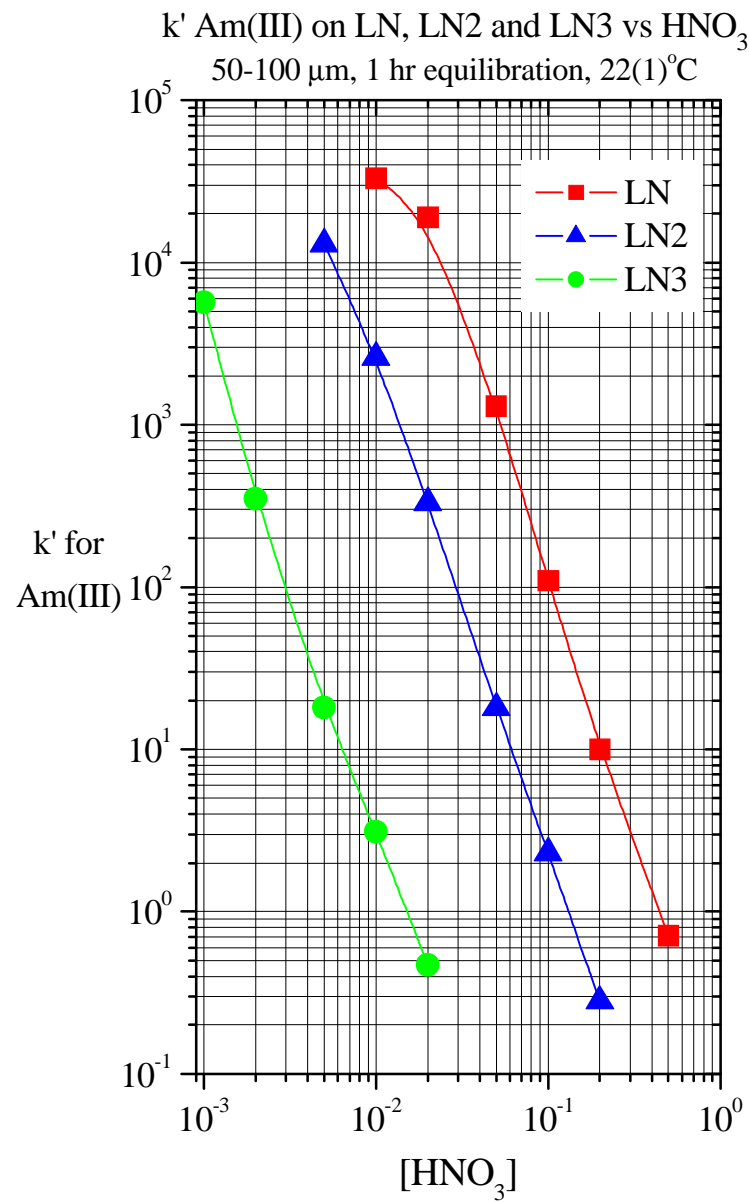
HEH[EHP] (LN2)



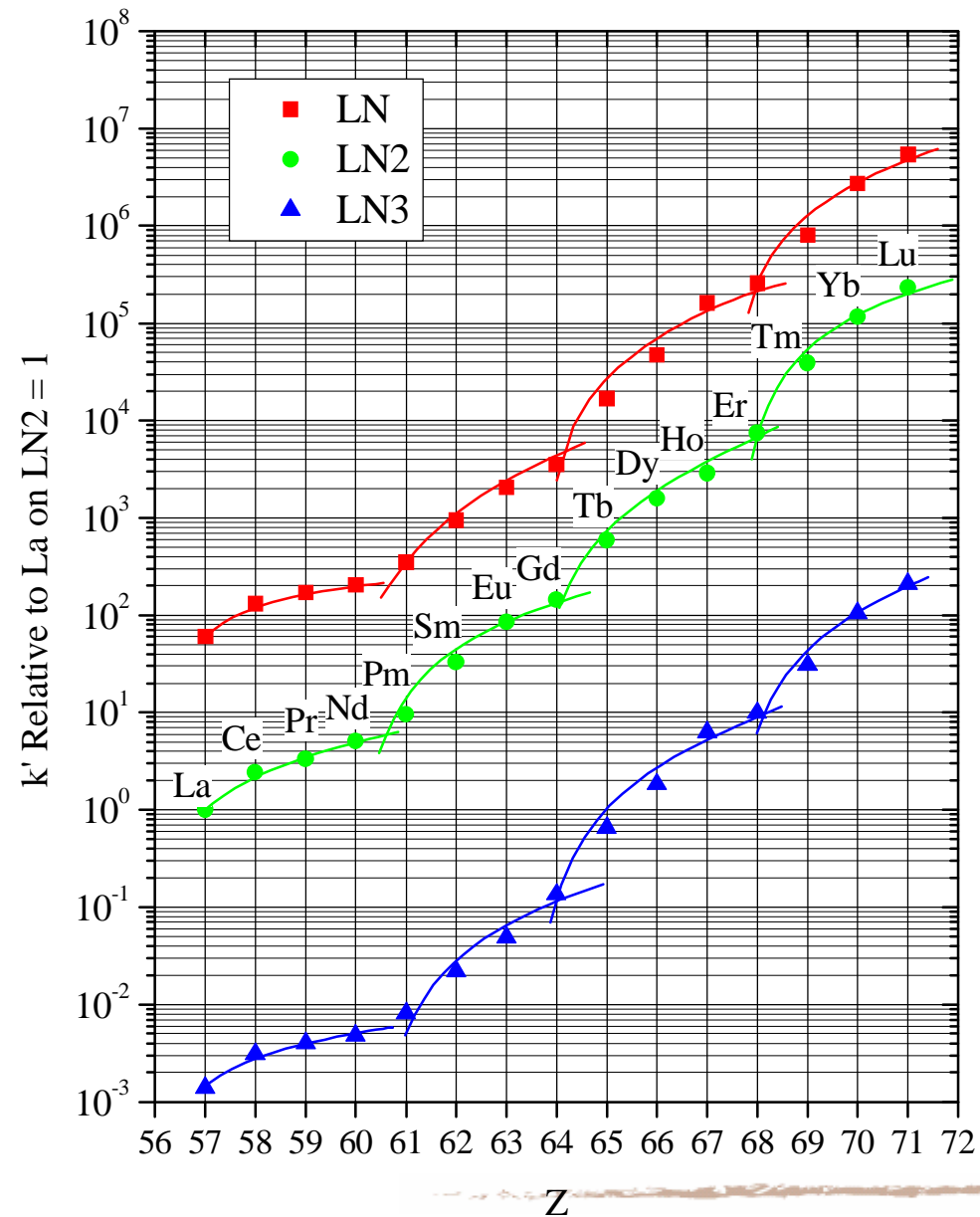
H[TMPeP] (LN3)



EICHROM ENVIRONMENT



EICHROM ENVIRONMENT

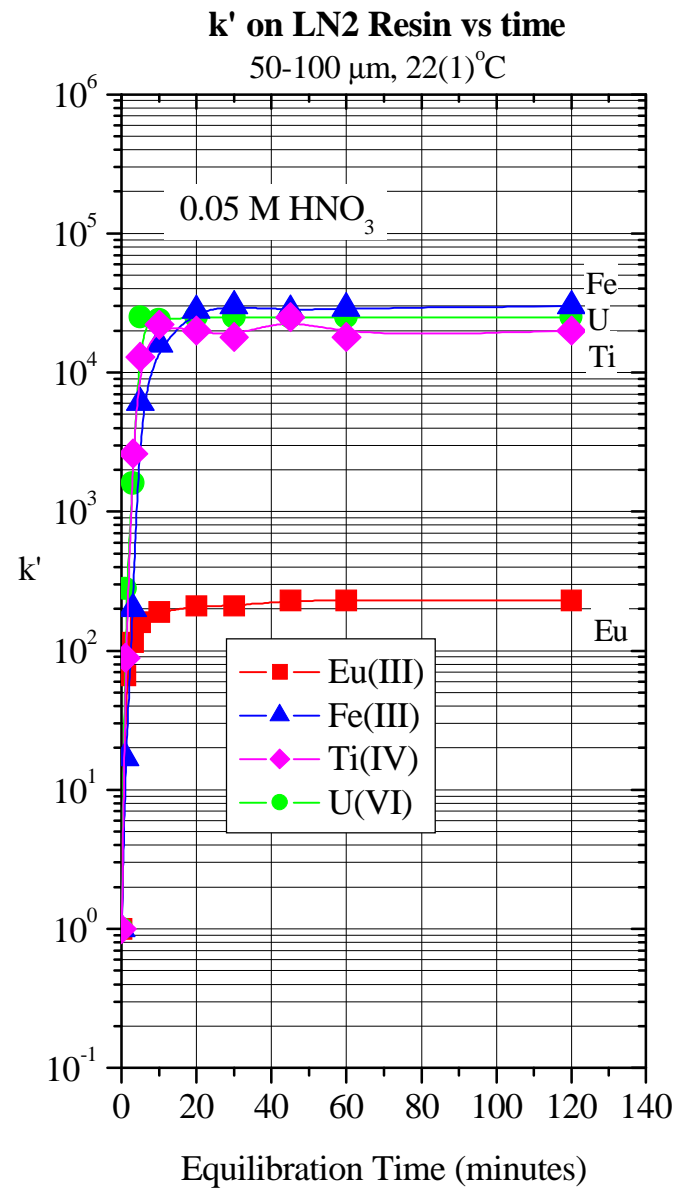


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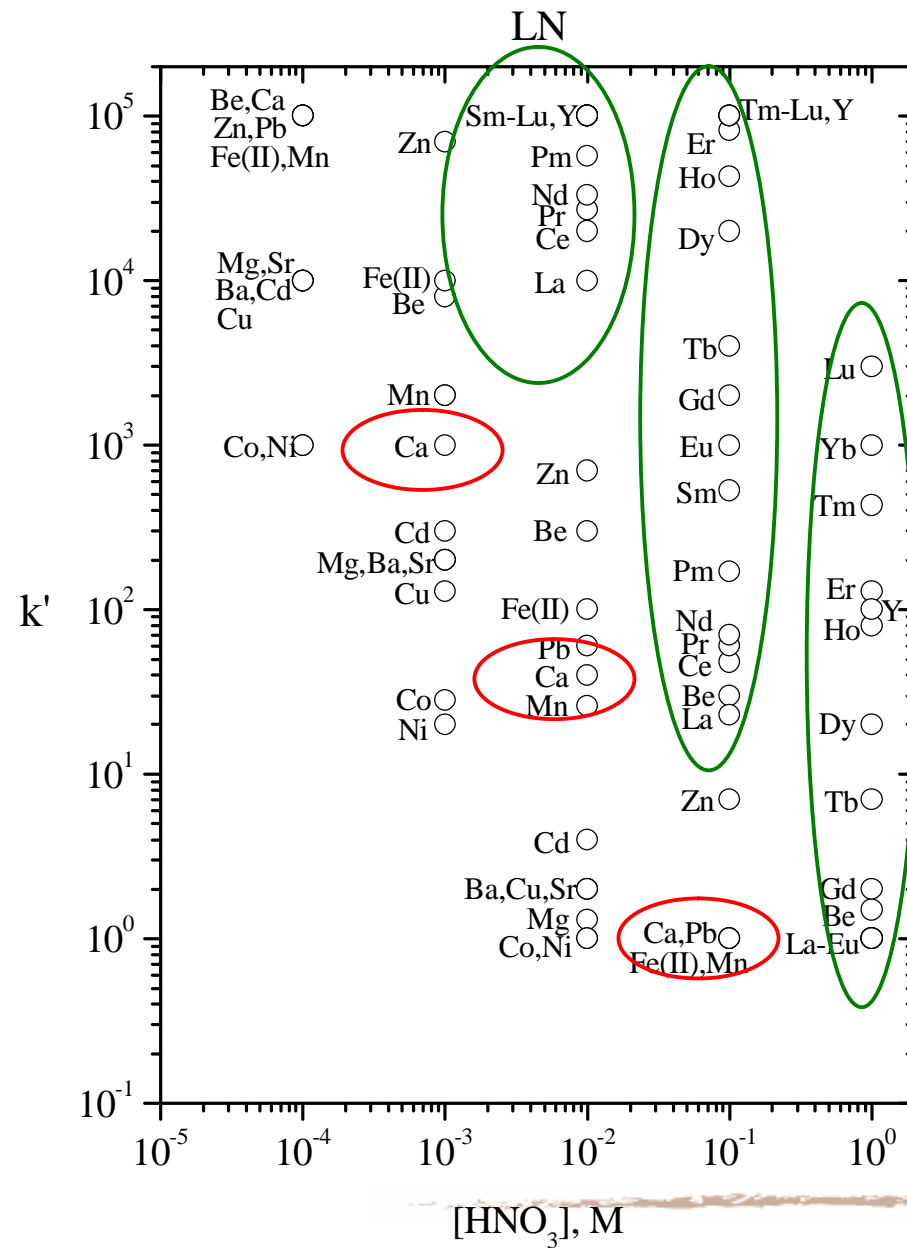
Metal Ions Studied on LN Resin Series

H																	He						
Li	[Red]						[Red]		[Blue]							B	C	N	O	F	Ne		
Na													[Red]	Si	P	S	Cl	Ar					
K														Ge	As	Se	Br	Kr					
Rb														[Blue]		[Blue]	Ag	Sn	Sb	Te	I	Xe	
Cs														Os	[Blue]		[Blue]	[Red]			Po	At	Rn
Fr		Ra	[Red]	Rf	Db	Sg	Bh	Hs	Mt														
		Pa		[Red]	Np	[Red]	Cm	Bk	Cf	Es	Fm	Md		No	Lr								

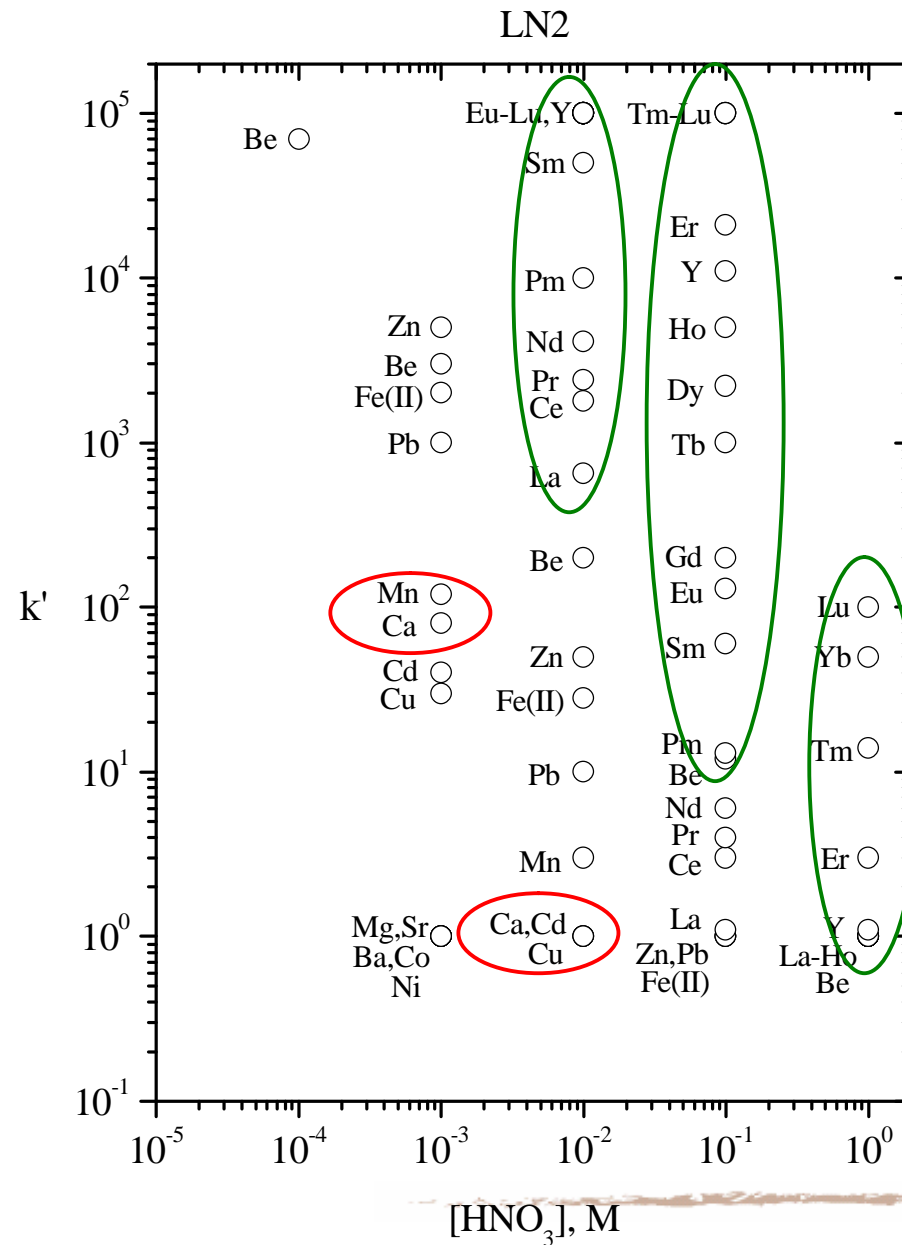
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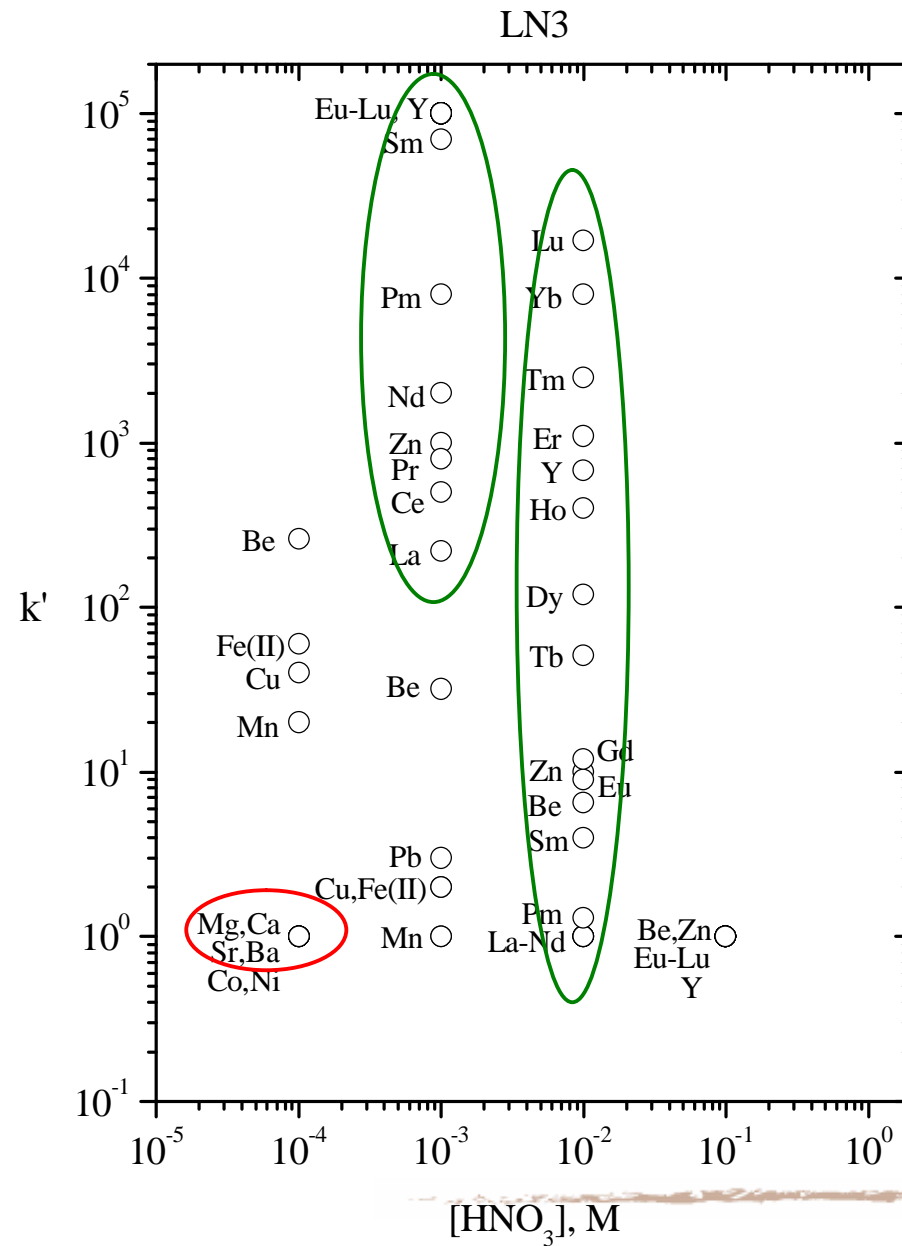
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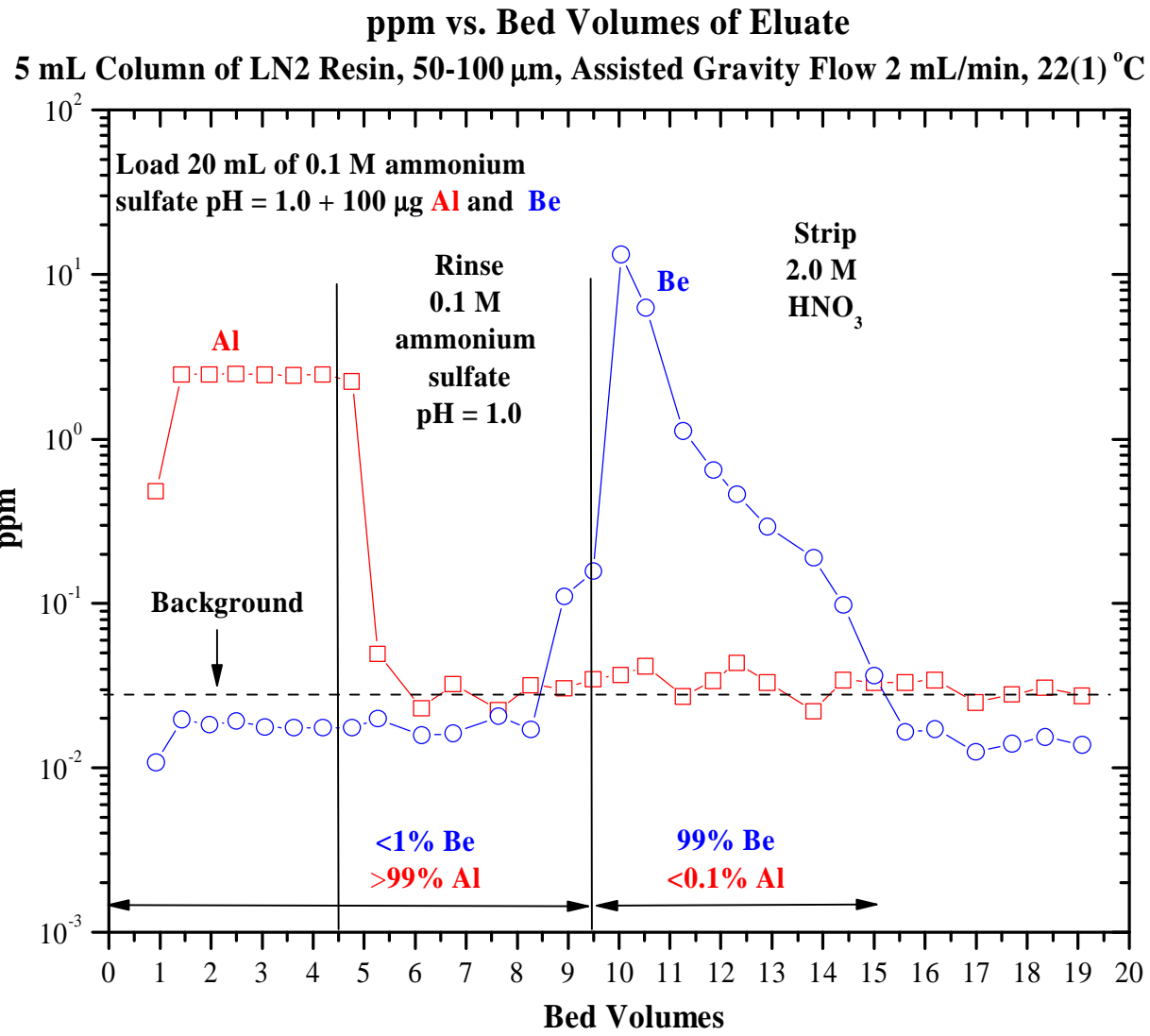


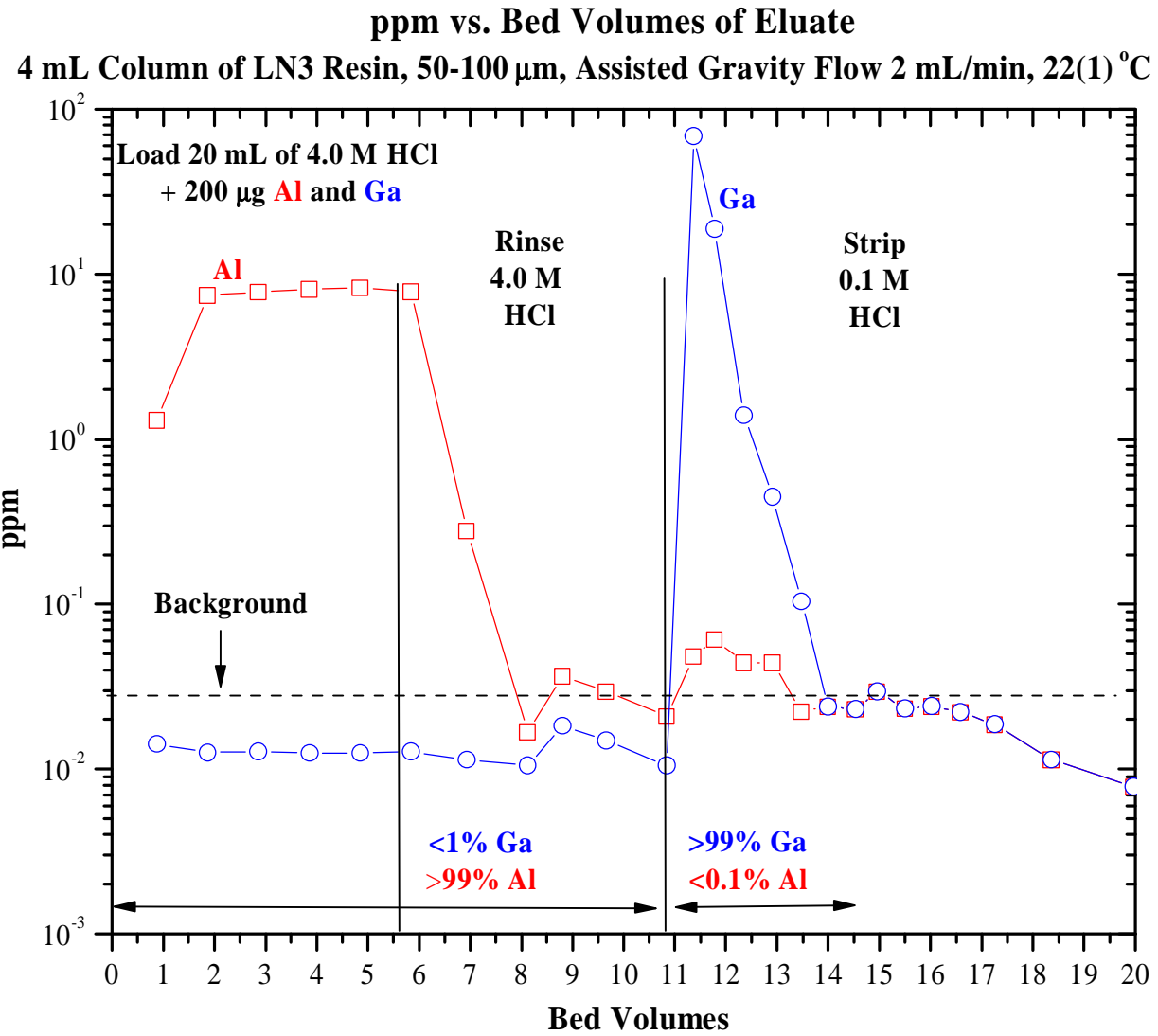
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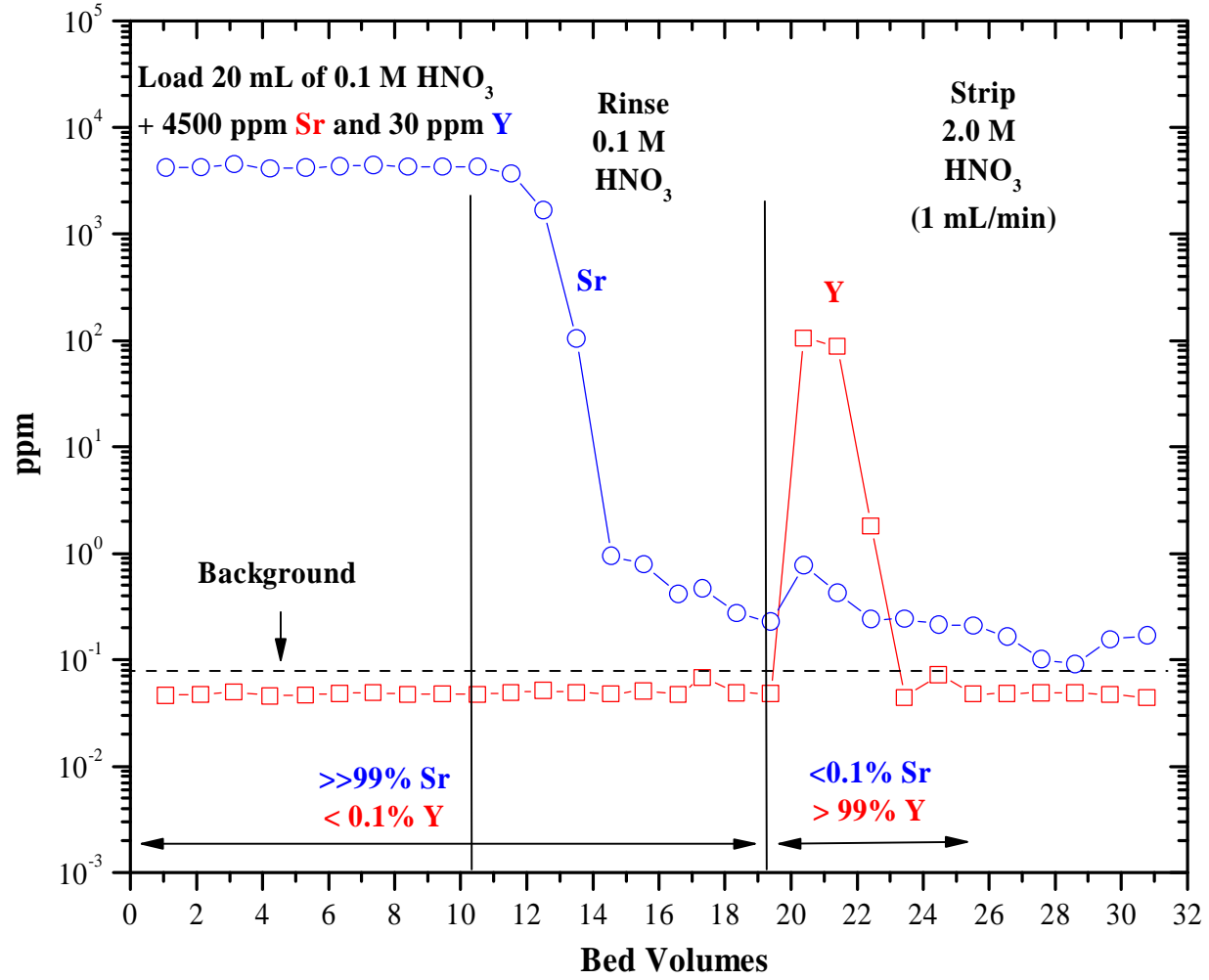
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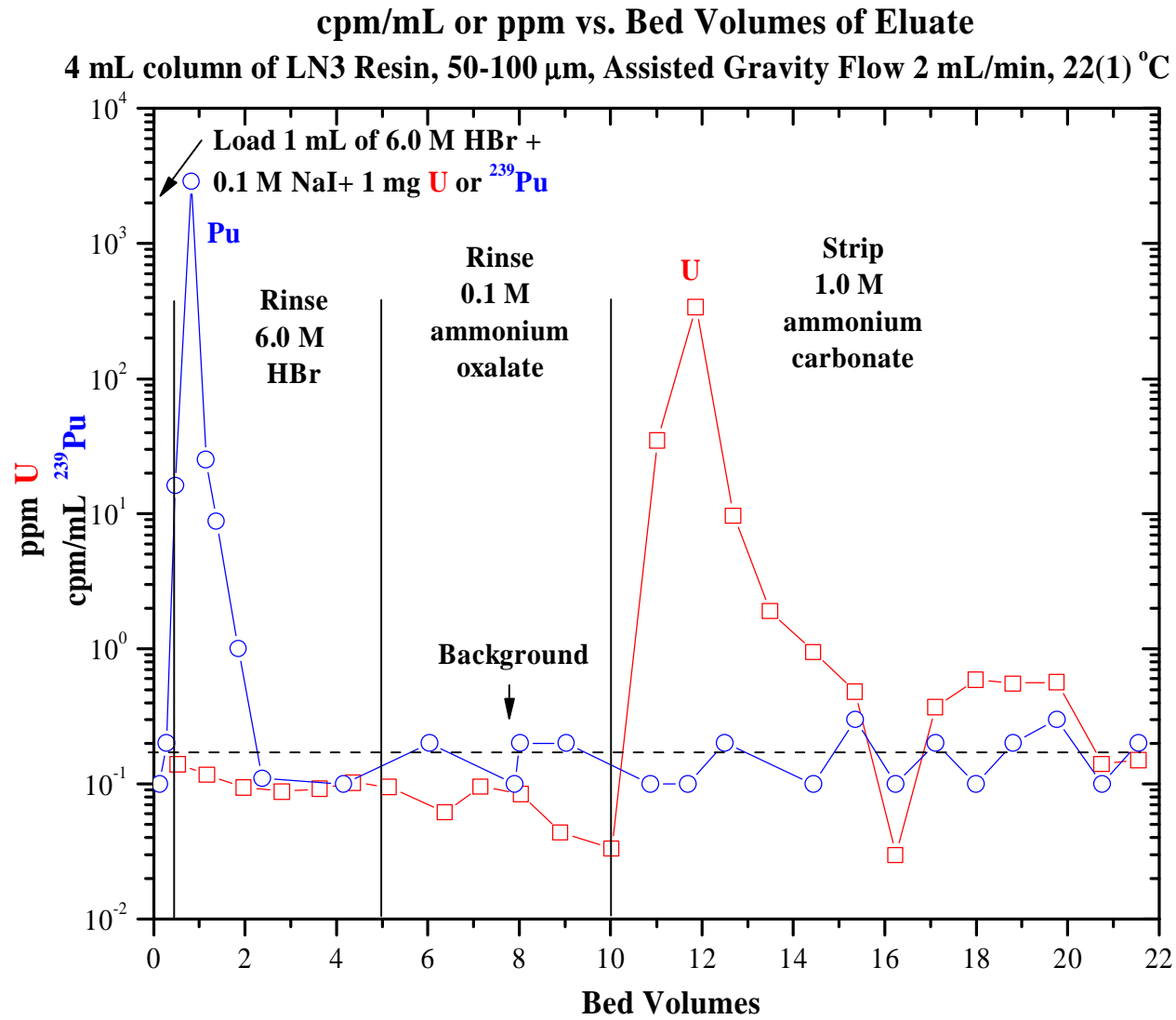




ppm vs. Bed Volumes of Eluate
2 mL Cartridge of LN2 Resin, 50-100 μm , Assisted Gravity Flow 2 mL/min, 22(1) $^{\circ}\text{C}$

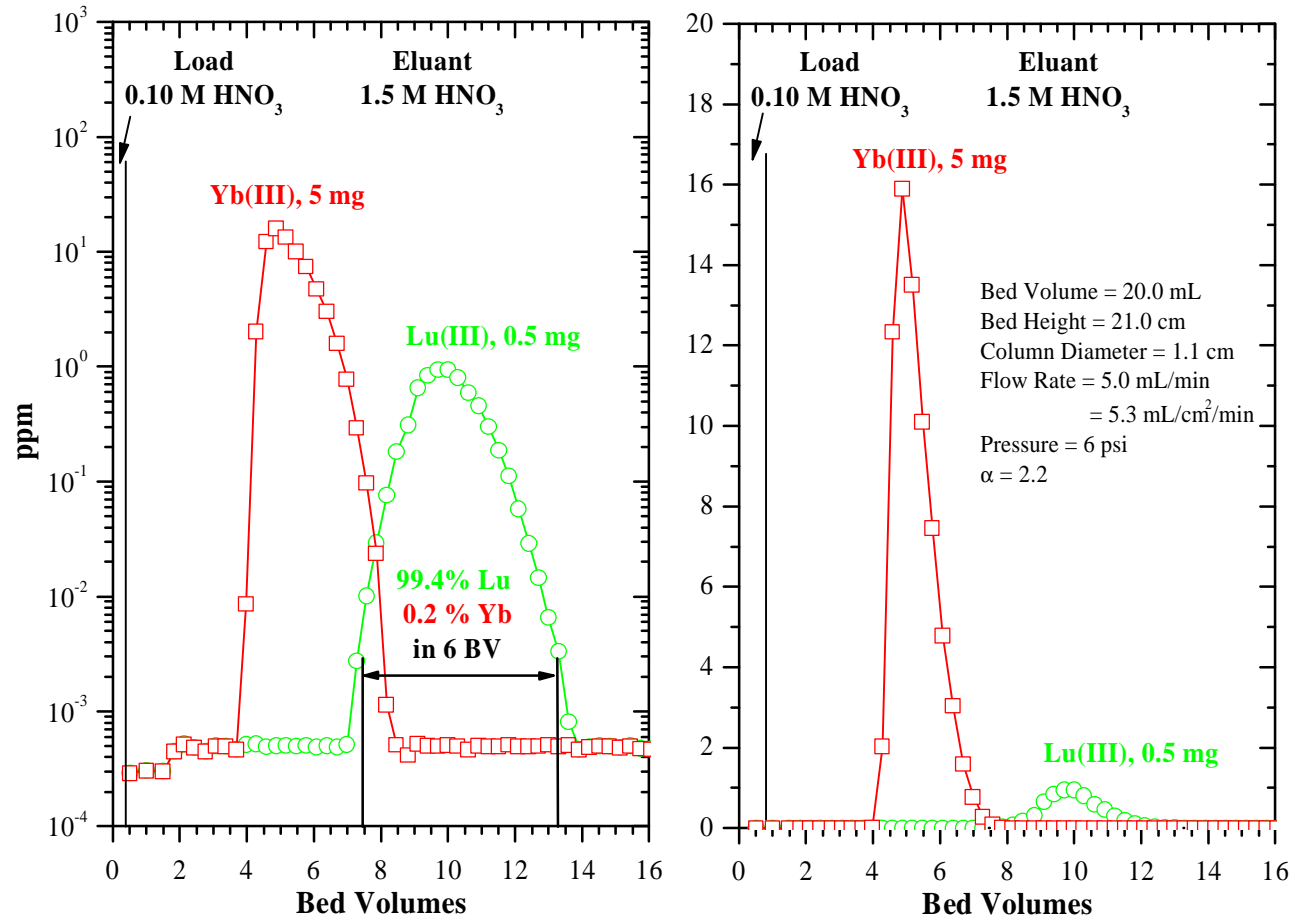


EICHROM ENVIRONMENT



Separation of Yb and Lu on LN2 Resin

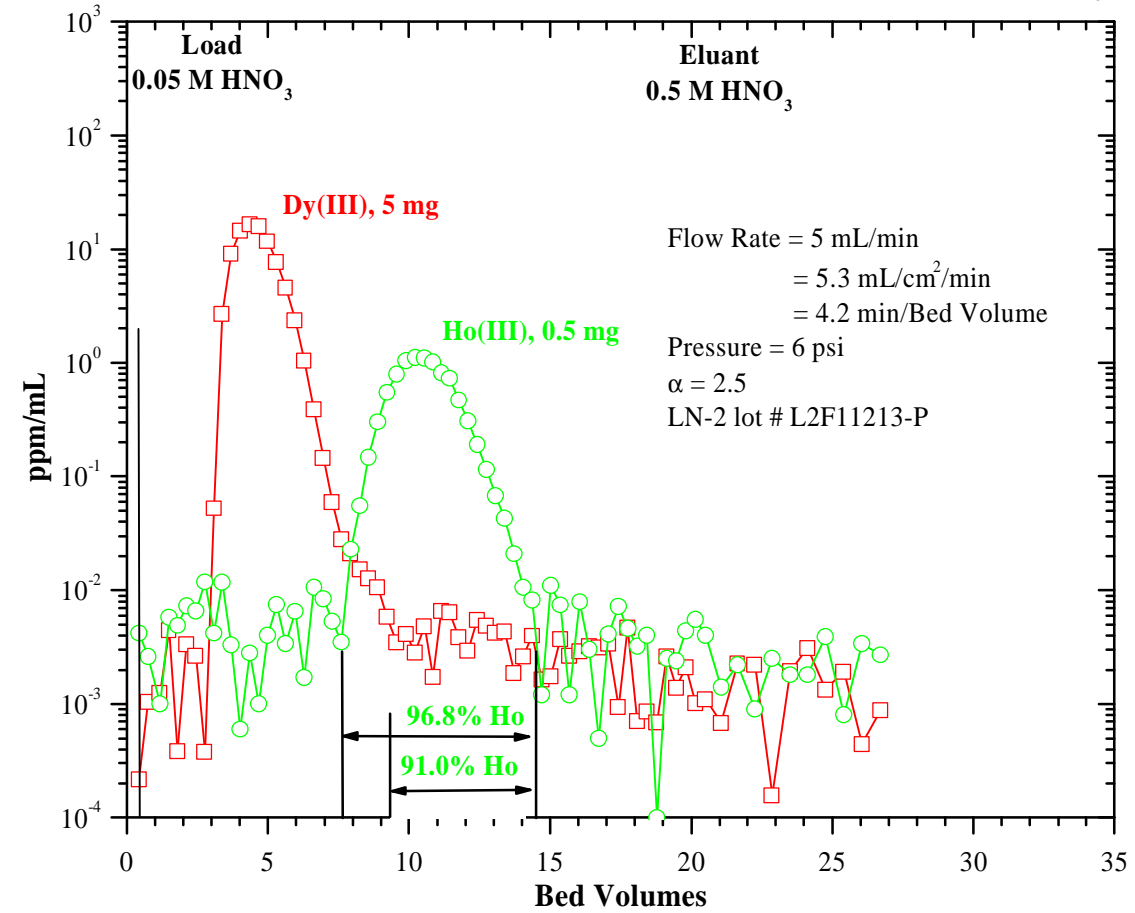
Slurry Packed 25-53 μm LN2 Resin, Operating Temperature 50(1) $^{\circ}\text{C}$



EICHROM ENVIRONMENT

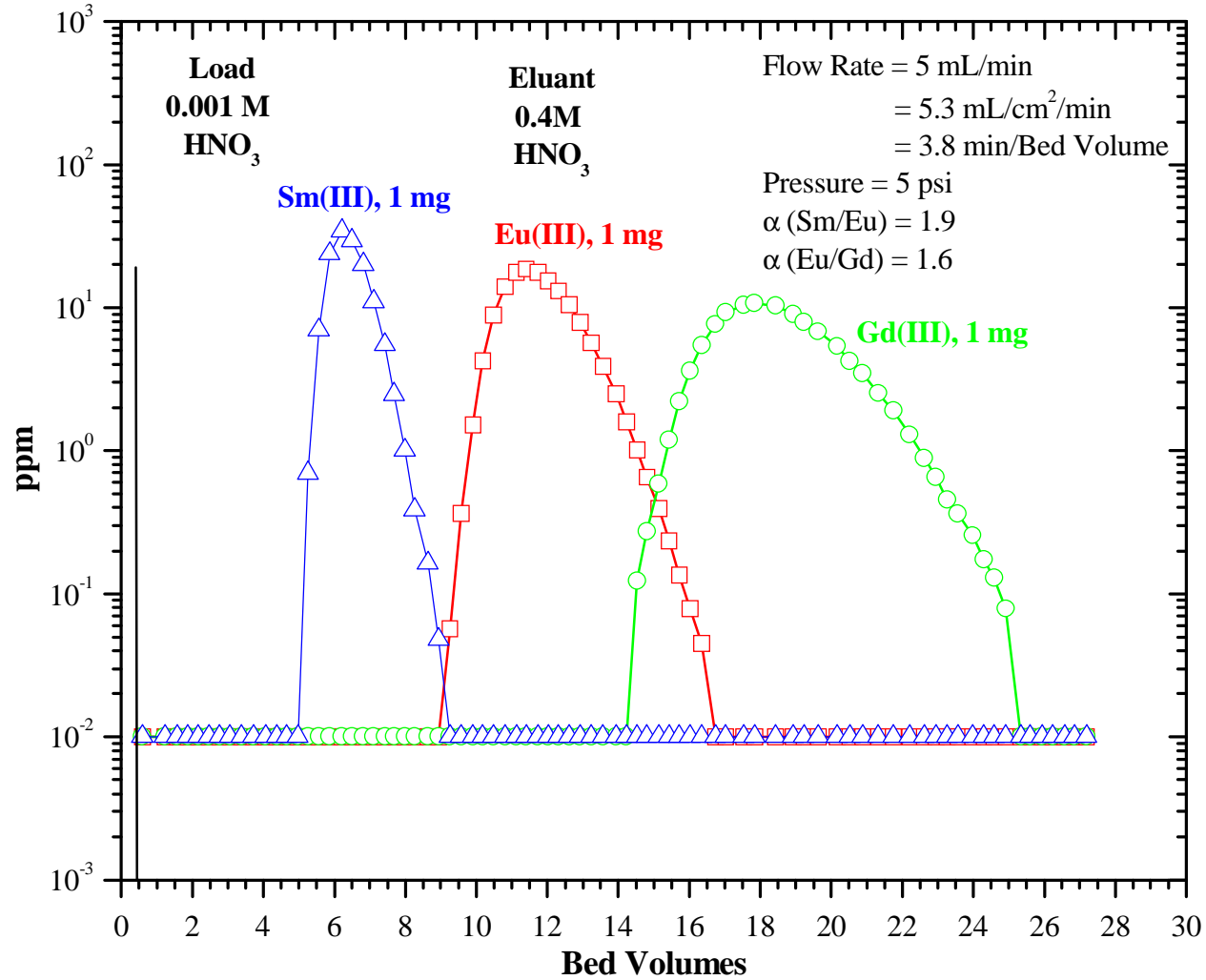
ppm/mL vs. Bed Volumes of Eluate

Slurry Packed 25-53 μm LN2 Resin (Post Lu/Yb), Preconditioned with 0.05 M HNO_3 , 50(1) $^\circ\text{C}$



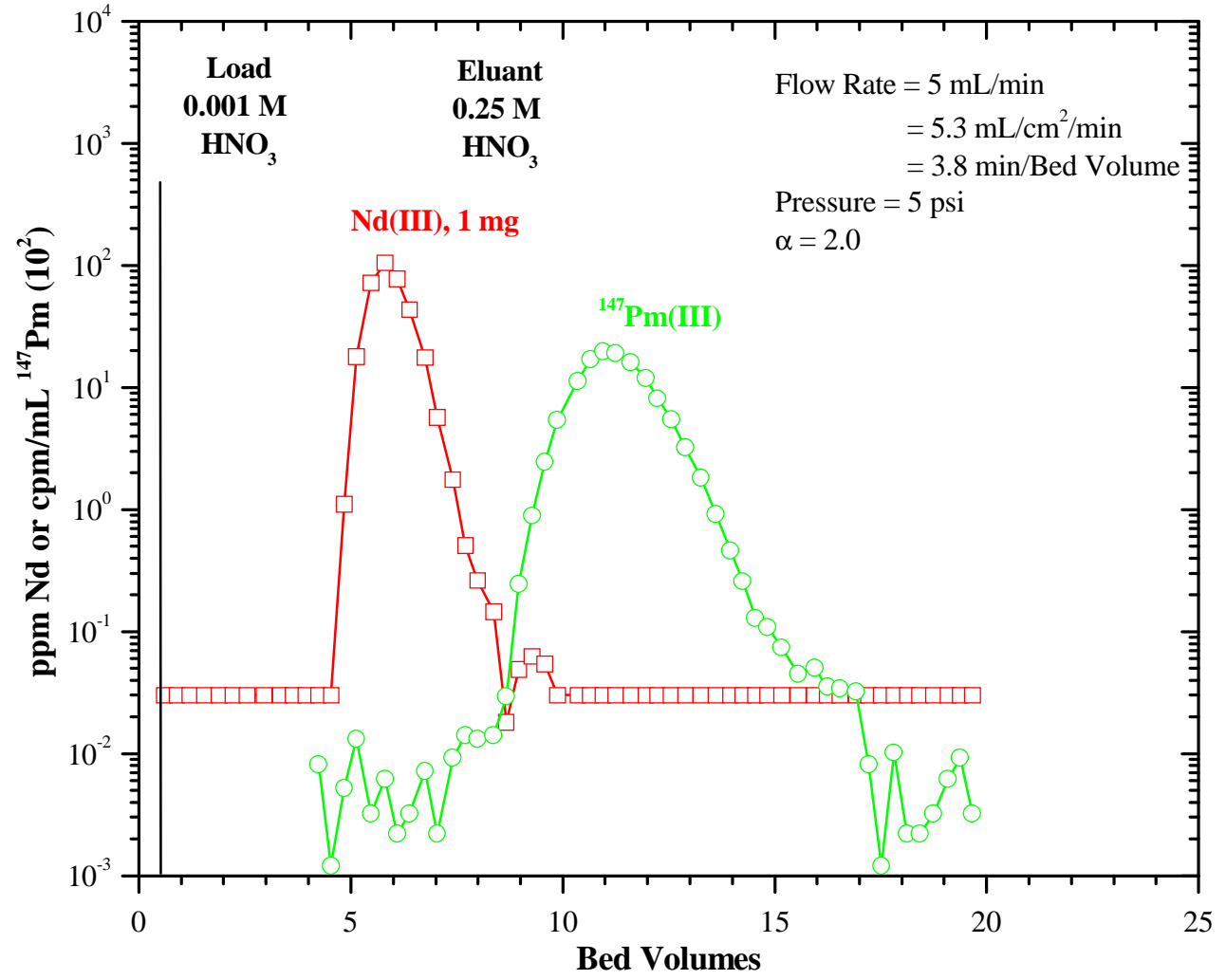
ppm vs. Bed Volumes of Eluate

Slurry Packed 25-53 μm LN Resin, Preconditioned with 0.001 M HNO_3 , 50(1) $^\circ\text{C}$



ppm or cpm/mL vs. Bed Volumes of Eluate

Slurry Packed 25-53 μm LN Resin, Preconditioned with 0.001 M HNO_3 , 50(1) $^\circ\text{C}$



Physical Constants of Slurry-Packed Columns of LN Series Resins

	LN	LN2	LN3
Extractant Density (g/mL)	0.96	0.91	0.89
Bed Density (g/mL)	0.38	0.37	0.39
Resin Density (g/mL)	1.15	1.13	1.13
v_s	0.16	0.16	0.18
v_m	0.67	0.67	0.66
v_s/v_m	0.24	0.24	0.27
D_v conversion factor (C_1) ^a	2.39	2.27	2.22
k' conversion factor (C_2) ^b	0.57	0.55	0.60

$$^a D_v = D_w \times C_1$$

$$^b k' = D_w \times C_2$$

Capacity for Trivalent Lanthanides and Actinides for LN Series

0.16 mmol/mL of bed for LN and LN2

0.18 mmol/mL of bed for LN3