

Additional Uses for Sr and Pb Resins

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Eichrom User's Group Workshop

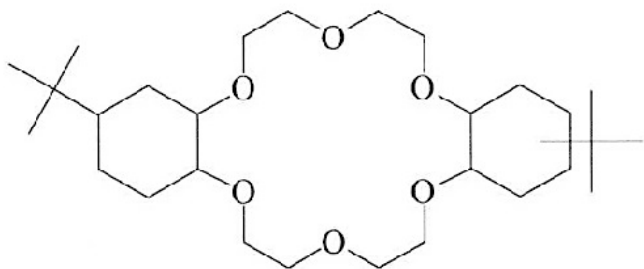
Sr Resin

2

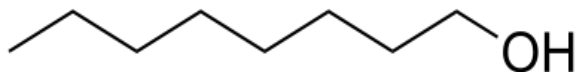
- 40 % (w:w) crown ether
- Hydrophobic diluent

Figure 1

4,4'(5')-di-t-butylcyclohexano
18-crown-6



Diluent: 1-octanol



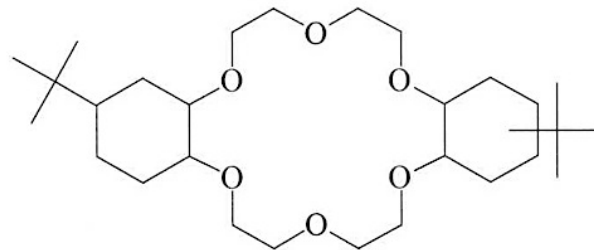
Pb Resin

- < 40% (w:w) crown ether
- More hydrophobic diluent

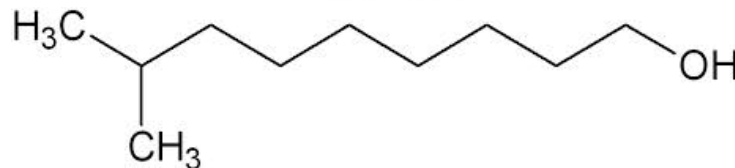
Figure 1

Pb Resin

di-t-butylcyclohexano 18-crown-6



Diluent: isodecanol



“Eichrom's Pb Resin is an extraction chromatographic material based on the same crown ether extractant used in the Sr Resin (Figure 1) but at a lower concentration and with a longer chain alcohol for a diluent to facilitate the stripping of Pb from the resin.” ~Eichrom Website

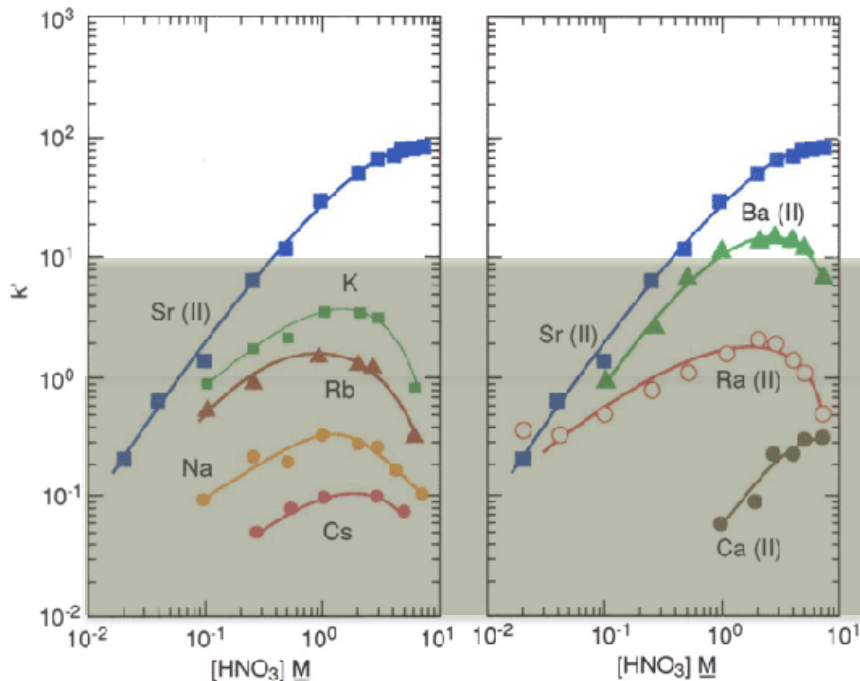
Sr Resin

3

□ Only HNO_3 data available online

Figures 2 and 3

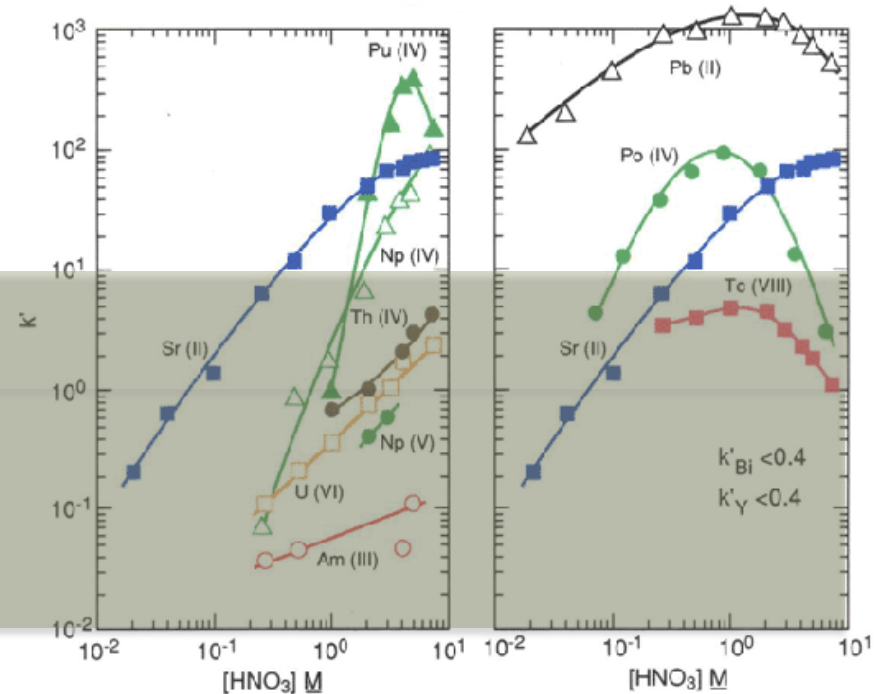
Acid dependency of k' for various ions at 23-25°C.
Sr Resin



Horwitz, et al., (HP292)

Figures 4 and 5

Acid dependency of k' for various ions at 23-25°C.
Sr Resin



Horwitz (HP199)

Source: Eichrom Website

Pb Resin

4

- Only HNO_3 data available online

Figure 2

Nitric Acid Dependency of k' for Selected Monovalent Metal Ions on Pb Resin

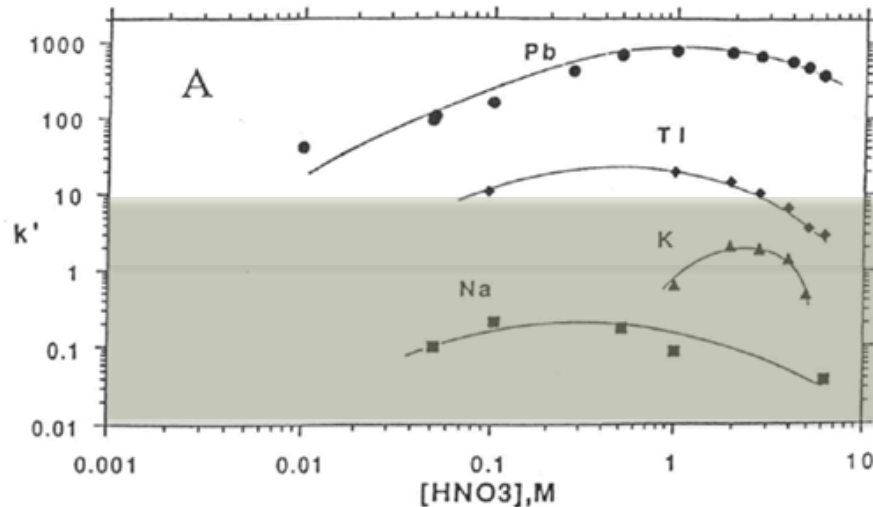
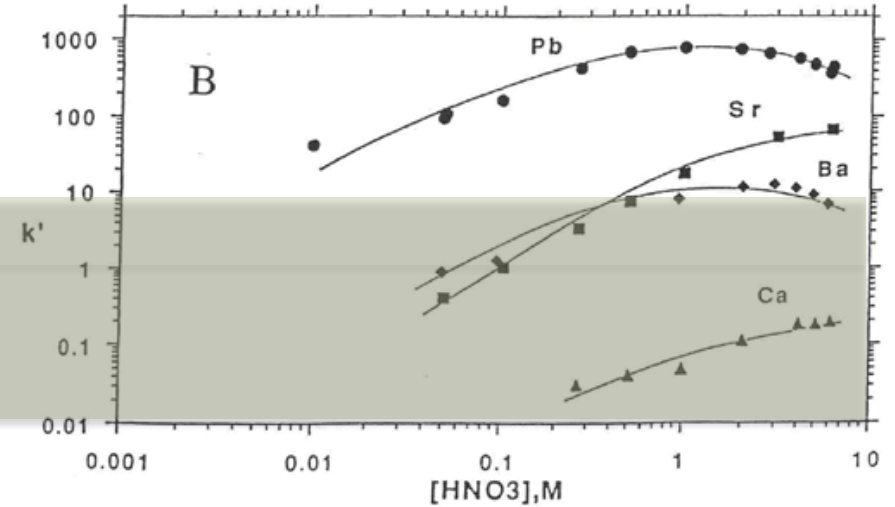


Figure 3

Nitric Acid Dependency of k' for Selected Divalent Metal Ions of Pb Resin

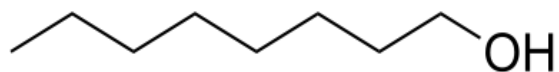


Horwitz, et al. (HP 194)

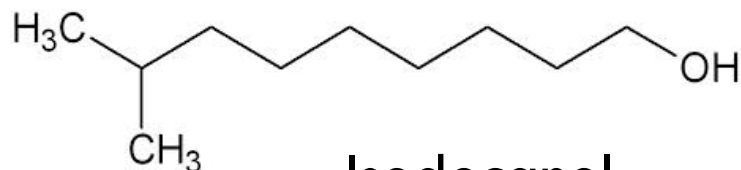
Source: Eichrom Website

Remember the Diluent?

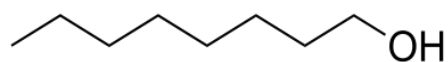
5



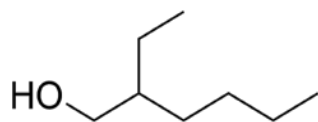
1-octanol
Sr Resin



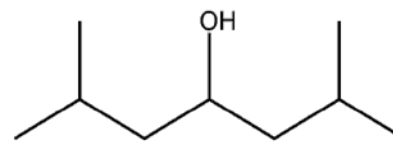
Isodecanol
Pb Resin



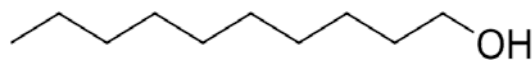
1-octanol



2-ethyl-hexanol



2,6-dimethyl-4-heptanol
(diisobutylcarbinol)



1-decanol

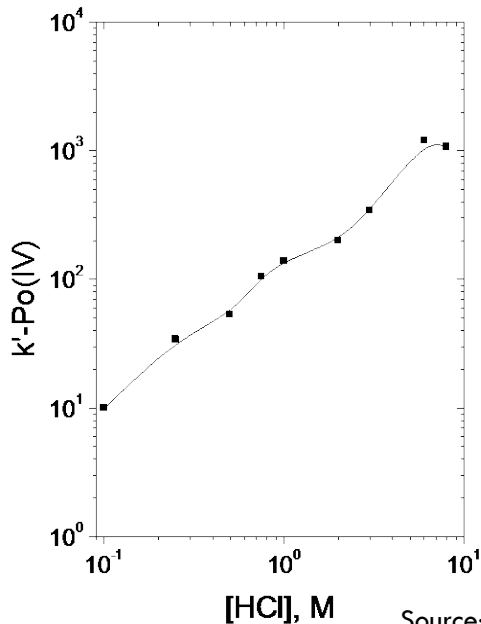
Ga, Po, and Pa Data on Sr Resin in HCl

6

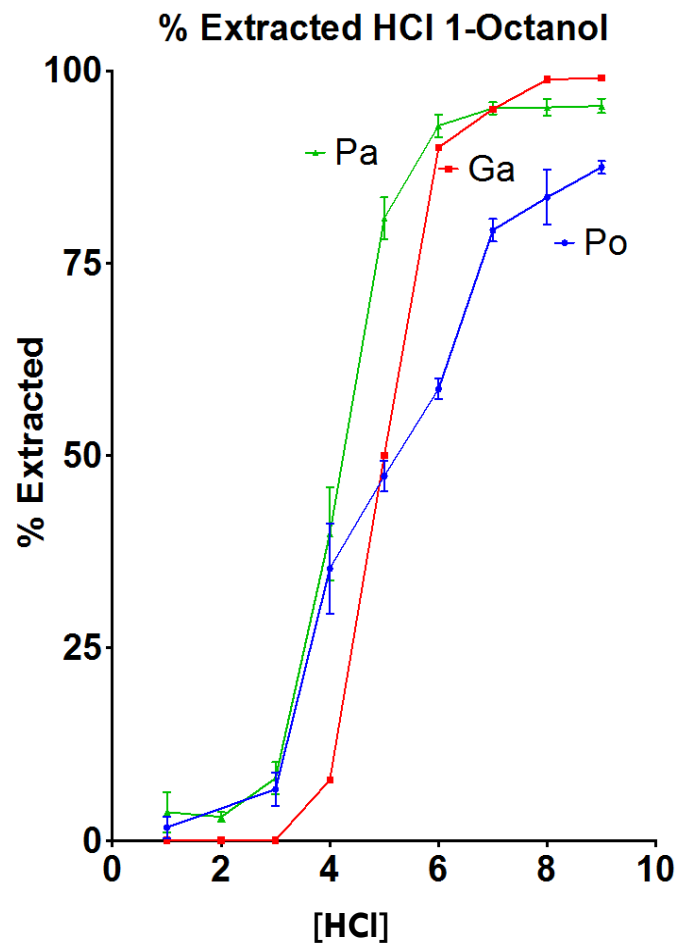
Elution peak Max on
Sr Resin , HCl (mL)

	1 M	6 M	9 M
Ga	10	>100	>100
Po	>100	>100	>100
Pa	5	25	>100

k' Po(IV) on Sr Resin vs HCl



Source: Dan McAlister



Suggestions for Eichrom

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- Present HCl and HNO₃ data for Sr and Pb resins that include:
 - Ga³⁺, Pa⁵⁺, Po⁴⁺, Fe^{3+/2+}

- Maybe make a 1-octanol resin...?



DISCUSSION