

REMOVAL OF U(VI) THROUGH SUPPORTED LIQUID MEMBRANES WITH TBP IN PTFE FILMS.

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Introduction

The transport of metal ions through supported liquid membranes has been proposed recently as a new technique for their selective separation and concentrations from dilute solutions [1, 2].

TBP (tri-n-butyl phosphate), due to its high distribution and diffusion coefficients, non-volatility over a wide range of temperature, immiscibility with water, stability to irradiation and chemical attack by acids and oxidizing agents has been widely used for separation of U(VI) from various metal ions in acidic solutions using liquid-liquid extraction technique.

The present investigation deals with the study the effect of pore size in PTFE films of 0.45, 1.2 e 5.0 μm has been use throughout this study.

Results and Discussion

In liquid-liquid extraction system the uranyl ions are extracted into the organic phase through the following reaction:



In fig. 1 the distribution ratio e extraction (%E) were determined at different concentrations of HNO_3 in aqueous phase. It can be seen that the extraction increases with increasing concentration of nitric acid.

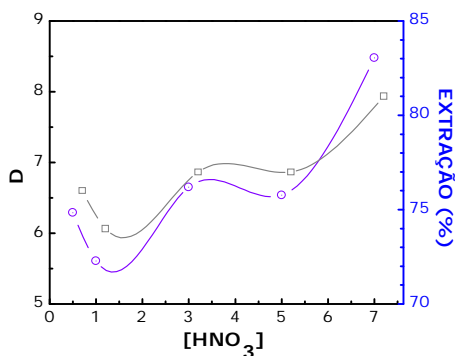


Figure 1: Effect of acidity on extraction of U(VI)

Table 1: Effect of the pore size of the membrane on transport of U(VI).

%U(VI) transferred (h)	Size pore (μm)		
	0.45	1.2	5.0
1	3.7	3.7	3.6
2	10.8	8.15	9.0
3	14.5	11.4	11.7
4	15.8	16.1	12.1
5	16.1	18.2	14.9
6	17.1	19.4	18.6
22	–	–	39.1
23	27.7	33.6	39.5
24	29.3	35.3	39.6

Feed: 0.01M U(V) in 5 M HNO_3 ; carrier: 0.1 M TBP in isopar and strip: 1.5 M Na_2CO_3

Conclusion

According to the results experimental results, in the supported liquid membrane process,

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