DEPURATION OF TERBIUM CONTAMINATED WATER USING A LIQUID MEMBRANE SUPPORTED

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Recently new chemical separation techniques have gained increasing interest, and this is confirmed by the large number of contributions that appeared in the scientific literature on this subject during the last two decades. This is largely due to increasing concerns about environmental problems, energy saving and to the optimization of industrial extraction [1]. In these extraction techniques, where have been used the properties of the membrane which is a thin layer and serves as a barrier capable of preferential or selective transfer of the components of the mixture [2]. Through the work related to the extraction of metals from industrial, liquid and solid wastes, as well as the separation of strategic metals, membrane extraction still shows its presence as a simple and efficient industrial process despite its drawbacks. This study is based on the extraction of Terbium (III) on a membrane impregnated with a mixture of CYPHOSIL 102 / CYPHOSIL 101 extractants. The objective of this work is to carry out the extraction of Tb (III) by the technique of extraction supported by liquid membrane (MLS), using the mixture of extractants CYPHOSIL101/ CYPHOSIL 102. The aim of this study was the optimization of the parameters. The MLS extractions are carried out using a Lewis cell, consisting of two Teflon blocks between which a membrane is placed, impregnated with a mixture of organophosphorus extractant. The solution in the left-hand compartment (A), known as the feed phase, contains the elements to be extracted and the solution in the right-hand compartment (B), known as the purification phase, contains the purification solution (HCl). The results obtained are translated as yields (%) as an analytical answer. Various parameters were tested such as the CYPHOSIL 102 / CYPHOSIL 101 mixing effect, the initial of pH and the extraction time. The results show that the amount of Tb3 + retained per gram of extractant is 7.65 mg.g-1 for a Tb3 + concentration of 10 -3 M. The CYPHOSIL101/ CYPHOSIL 102 mixture was used as the transmissive liquid membrane, and PVDF was used as support. In the extraction process of Tb (III), an important role has its working pH. Following our experiments, it has been found that a maximum extraction yield is obtained by working at a pH of 5.3 pH units.

Keywords: *Cyphosil 102, Cyphosil 101, Environment, Extraction.*

References

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