



## Transport of Pb(II) by supported liquid membrane containing p-tert-butyl calix[4]amine derivative as carrier

Ahmet Kaya<sup>a</sup>, Tugba Kutlu<sup>a</sup>, Aysen Hol<sup>a</sup>, Ahmet Surucu<sup>b</sup>, Hamza Korkmaz Alpoguz<sup>a,\*</sup>

<sup>a</sup>Department of Chemistry, Pamukkale University, 20017 Denizli, Turkey

Tel. +90 258 296 3600; Fax: +90 258 296 3535; email: hkalpoguz@pau.edu.tr

<sup>b</sup>Education Faculty of Pamukkale University, 20017 Denizli, Turkey

Received 20 March 2012; Accepted 22 April 2013

---

### ABSTRACT

Facilitated transport of Pb(II) ions in acidic medium, across a supported liquid membrane (SLM) by using 5,11,17,23-tetra-tert-butyl, 25,27-bis(benzylamino ethoxy)-26,28-dihydroxycalix [4]arene as carrier, dissolved in kerosene, has been investigated. The parameters studied are Pb(II) ions concentration in the feed phase, HCl concentration in the stripping phase, and solvent effect in the membrane phase. The Celgard 2500 membrane was used as the solid support. A Danesi mass transfer model was used to calculate the permeability coefficients for each parameter studied. Also, AFM technique and contact angle measurements were used to characterize the surface morphology of the prepared Celgard 2500-carrier 1 SLM.

*Keywords:* Facilitated transport; Supported liquid membrane; Pb(II) transport; Calixarene

---

\*Corresponding author.