

## KINETIKA DAN MEKANISME SISTEM TRANSPOR Cd(II) ANTAR FASA MELALUI TEKNIK MEMBRAN CAIR FASA RUAH DENGAN OKSIN SEBAGAI ZAT PEMBAWA

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### ABSTRACT

The transport and separation of Cd(II) through bulk liquid membrane technique had been investigated and optimised. Cd(II) was transported through a liquid membrane of chloroform solution containing oxine as mobile carrier and received by EDTA in stripping phase. In compliance with optimum condition, the flux of Cd(II) crossing the membrane was studied, and applied further into a model of the transport system and kinetics mechanism. Concentration of Cd(II) in feed and stripping phases were experimentally determined, and monitored by the atomic absorption spectrophotometer at  $\lambda_{\text{maks}} 228.8 \text{ nm}$ . The model curve of time dependence of Cd(II) reduced concentrations in the feed, membrane and stripping phases show good agreement and characterized as a transport system for Cd(II) interphase involved two consecutive irreversible first order reactions. The rate constant of transport at temperature 28°C are  $k_1 0.0416 \text{ minutes}^{-1}$ ,  $k_2 0.0354 \text{ minutes}^{-1}$  and activation energy 32.96 kJ mol<sup>-1</sup>

### **DAFTAR PUSTAKA**

1. Farhadi, K., and Shamsipur, M., 2005, Separation Study of Cadmium as CdI<sub>4</sub><sup>2-</sup> Through a Bulk Liquid Membrane Containing Ketoconazole and Oleic Acid, *Anal Sci.*, 21: 501-505.
2. Leon, G., 2004, Facilitated Transport of Cobalt Through Bulk Liquid Membranes Containing Diethylhexyl Phosphoric Acid, *Desalination*, 162: 211-215.
3. Leon, G., de los Santos, R., Guzman, M.A., 2004 Reduction of Sodium and Chloride Ion Content in Aqueous Solution by Bulk Liquid Membranes: Kinetic Approach, *J. Membr. Sci.*, 168: 271-275.
4. Mulder, M., 1991, Basic Principle of Membrane Technology, Kluwer Academic Publisher, Dordrecht, 244 – 259.
5. Zaharasmi, K., 2001, Transpor Co(II) antar fasa (air-kloroform-air) melalui teknik membran cair fasa ruah, *Jurnal Kimia Andalas.*, 7(2): 71-79.
6. Zaharasmi, K., 2002, Mempelajari peranan oksin sebagai zat pembawa Co(II) antar fasa (air-kloroform-air) melalui teknik membran cair fasa ruah, *Jurnal Kimia Andalas.*, 8(1): 29-33.
7. Zaharasmi, K., 2005, Mempelajari Transpor Cd(II) Antar Fasa Untuk Teknik Pemisahan Melalui Membran Cair Fasa Ruah Dengan Menggunakan Oksin Sebagai Zat Pembawa, Laporan Penelitian Projek Due Like Research Grant Jurusan Kimia FMIPA Unand, 1-20.
8. Refinel, Zaharasmi, K., dan Resa Amelia, 2005, Optimalisasi transpor ion Zn(II) dengan zat pembawa oksin melalui teknik membran cair fasa ruah, *Jurnal Menara.*, 1(5): 23-34.
9. Pelita, E., 2001, Permiasi Ni (II) Melalui Membran Cair fasa Ruah Dengan Menggunakan Oksin Sebagai Pembawa, Internasional Symposium, Department of Chemistry, Unand, Indonesia, 16-17.
10. Zaharasmi, K., Admin Alif, Hermansyah, A., dan Emriadi, 2002, Pengaruh ion Fe(III), Ni(II), Cu(II) terhadap transpor Co(II) antar fasa (air-kloroform-air) melalui teknik membran cair fasa ruah, *Jurnal Kimia Andalas.*, 8(1): 29-33.