

论文

## 循环伏安法制聚(1,5-萘二胺)膜及其对紫外可见光吸收的研究

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**摘要** 利用循环伏安法合成了1,5-萘二胺(1,5-DAN)聚合物膜. 从反应的介质、膜的厚度以及掺杂酸的种类等方面, 讨论了制备电活性聚1,5-萘二胺(P1,5DAN)膜的影响, 结果发现, 在酸性水溶液中, 初始的电活性比较高, 但是, 随着循环的继续, 聚合物膜的电量损耗比较大, 而在乙腈溶液中电量损耗较小; 同时还发现, P1,5DAN电活性膜的厚度并不随总电量的增加而增厚; 活性聚合物膜是受扩散控制, 扩散系数(D)与酸根离子有关. 最后, 结合电化学, 讨论了不同掺杂状态下的紫外可见吸收光谱(UV-Vis), 并用FT-IR对所合成的聚合物作了结构表征.

**关键词** [循环伏安](#) [1,5-萘二胺](#) [电化学聚合](#) [紫外可见吸收光谱](#)

分类号

## PREPARATION OF POLY(1,5-DIAMINONAPHTHALENE) FILMS BY CYCLIC VOLTAMMETRY AND THEIR UV-VIS SPECTROSCOPY

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**Abstract** Poly(1,5-diaminonaphthalene)(1,5-DAN)films were prepared by cyclic voltammetry on an indium tin oxide (ITO)plate working electrode in acetonitrile and acid aqueous solutions,respectively,and were characterized with FT—IR. The electroactivity of polymer films was examined by changing the polymeric solvents,film thickness and doping acid. A highly electroactive polymer film was obtained in acid aqueous solutions. With increasing the potential scan rate,however,the loss of amount of charge is more in an acid oqueous solution than that in acetonitrile. The results showed that the film thickness did not increase linearly with increasing the amount of charge used during polymerization. The UV-Vis spectra were collected while pentiostatic technique was performed under various applied voltage. and the electronic band gap was testified from the onset of the  $\pi-\pi^*$  transition of the neutral pelymer.

**Key words** [Cyclic voltammetry](#) [Poly \(1,5-diaminonaphthalene\)](#) [Electropolymerization](#) [UV-Vis spectra](#)

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