

## 钒液流电池用石墨毡电极的电化学修饰

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**摘要** 研究了钒液流电池用石墨毡电极的电化学处理, 结果发现, 电化学处理能提高电极活性, 30mAcm<sup>-2</sup> 电流密度下, 电压效率可达90.96%, 电流效率达92%. XPS分析表明, 电化学处理后, 石墨毡表面的O/C比例由0.085增加至0.15, 且主要增加的是COOH官能团, 与FT-IR分析结果一致. SEM表明碳纤维表面被刻蚀, BET测试结果表明比表面积有所增加.

电极活性的提高归因于碳纤维表面COOH官能团数目的增加及比表面积的增大.

**关键词** [钒电池](#) [石墨毡](#) [电化学氧化](#) [XPS](#)

分类号

## Electrochemical Modification of Graphite Felt Electrode for Vanadium Redox Flow Battery

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**Abstract** Electrochemical oxidation of graphite felt was investigated so as to enhance the electrochemical performance of this material for using in vanadium redox cell. Electrochemical activity of the graphite felt in vanadium electrolyte increases with its extent of oxidation. Cell voltage efficiency of over 90% and current efficiency of over 92% are obtained after treatment. Both XPS and FT-IR analysis demonstrates that surface functional groups of COOH increase mainly compared with untreated samples. SEM shows the surfaces are eroded. BET/N<sub>2</sub> measurements show the surface area increases. The improvement of electrochemical activity for the electrode is ascribed to the increase of the number of COOH group and the special surface.

**Key words** [vanadium redox cell](#) [graphite felt](#) [electrochemical oxidation](#) [XPS](#)

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