

鋅-空氣電池的空氣流管理之研究

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摘要

本研究主要為探討鋅空氣電池的空氣極空氣流管理。鋅空氣電池是一種以空氣中的氧為氧化劑的一種化學電池，所以又稱為空氣去極化電池，其發展時間較燃料電池早。鋅空氣電池的發展早在十八世紀已發明，與現今的電池使用鹼性電解液不同，是採用NH₄Cl的微酸性電解液，鋅料當陽極，和含少量鉑的活性炭當陰極載體，產生電流密度較小，因此受限了其發展能力，由於燃料電池的問世，也因此在氣體電極與多孔性材料的技術上又有新的突破，使得鋅空氣電池的發展更進一步。空氣對鋅空氣電池的影響非常重要，空氣量不足會使電池效能降低，空氣內含二氧化碳的量會與鹼性電解液反應產生碳酸鹽化合物，影響電解液的解離能力，本研究主在研究鋅空氣電池利用風扇吹入的氣流與壓縮空氣對電池的影響，鋅空氣電池在不同種類空氣流提供方式下會對電池造成不同的性能影響，實驗中對電池進行定電流放電，為電化學之伏特法量測方法之一，放電過程中加入不同的相對速度及不同氣體壓力為實驗的操作參數，另外鋅空氣電池對濕度的影響也是有關聯到電池的性能影響，因此對於鋅空氣電池的最佳操作環境與最佳空氣流管理方式是本研究的重點。

關鍵詞：鋅空氣電池；空氣流管理；壓縮空氣；定電流；伏特法

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