

# 新及再生能源技術先期研發-從紡織品再生生質能源創新前瞻計畫

執行單位

紡織所

計畫主持人

林伯儒

- 本計畫主要產出在於1)環保離子液體溶劑合成與2)膜蒸餾系統開發，可應用於循環經濟領域，如天然纖維回收再利用、廢織物回收再製化學品、化學品濃縮、鹽回收、廢水回收與脫鹽處理等。

## 1.美國發明專利：多醣類纖維的製備方法









申請日：2015/05/08

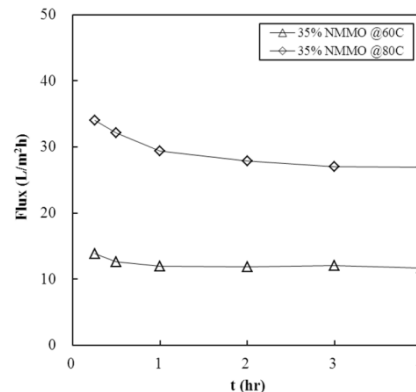
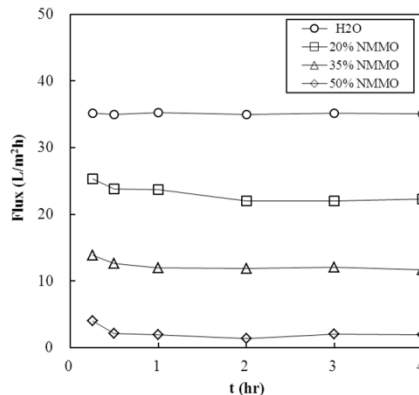
申請號：14/707,006

## 2 華民國發明專利：用於膜蒸餾的複合膜

申請日：2015/12/10

申請號：104141552

織物	純棉	染色棉	縲縲	天絲棉
處理前				
處理後				
萃取率	85.2%	93.1%	73.5%	96.3%



熱端流量：5 L/min；冷端流量：2 L/min  
 操作壓力：熱端：0.25 bar；冷端：0.25 bar  
 有效膜面積：0.165×0.185 = 0.0305 m<sup>2</sup>  
 T<sub>h</sub>：60°C；T<sub>c</sub>：20°C

研究以廢棄紡織品生產生質能源的可行性，並結合現有的產業體系與新創的技術能量（近無碳損纖維素生質丁醇技術、綠色溶劑離子液體合成與回收技術），創造環境保護與經濟發展雙贏的目標。

藉由分子結構設計，合成低能耗與高產率的離子液體，用於含棉紡織品的處理，以回收纖維素作為生產生質能源的原料。結合滲透蒸發薄膜技術，開發低能耗的離子液體回收技術，整體降低產生質能源的成本。設計測試模廠，評估以現有回收體系廠商加入廢織物回收的適當性與利基點，並分析在地分散織物前處理的可行性。

# New and Renewable Energy Technology in Advanced Research and Development - Producing Bio-energy from Wasted Textiles

Execution Unit

Taiwan Textile Research Institute

Project Director

Lin, Po-ju

- 1) The synthesis of environmentally friendly ionic liquid and 2) development of membrane distillation system, which can be applied in the field of circular economy such as natural fiber recycling, textile recycling, chemical concentration, salt recovery, wastewater recycling and desalination.

1.US patent : PREPARATION METHOD OF POLYSACCHARIDE FIBER

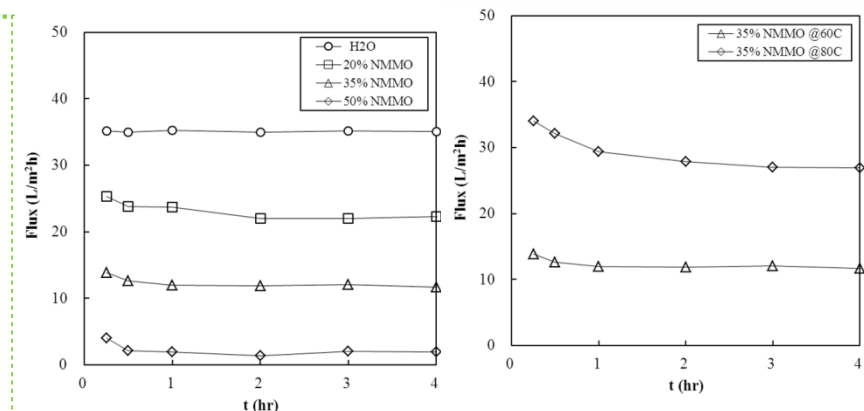
Filing Data : 2015/05/08

Application No. : 14/707,006

2.ROC patent : COMPOSITE MEMBRANE UTILIZED IN MEMBRANE DISTILLATION

Filing Date : 2015/12/10

Application No. : 104141552



The feasibility research of producing biomass energy from wasted textile products. This project will be focused on developing low energy consumption and low cost process to produce ionic liquid so called green solvent and reuse them.

By molecular structure and formulation design, the ionic liquid will be used to be the proper solvent for cellulose from wasted textile to recover the cellulose to be the raw material to produce bioenergy by fermentation and recycled the solvent by ion exchange fiber or membrane pervaporation system. A pilot plant will be established to evaluate the cost and energy efficiency for the project.