



硫酸、鉻三價離子及氯化鈉之均相混合觸媒加乘性催化木糖脫水反應生成糠醛

提案人：萬本儒 教授

單位：國立臺灣大學 化學工程學系

簡歷：(可列出相關連結，例如系所、研究室網頁)

<http://www.che.ntu.edu.tw/che/?p=444>

市場及需求：

台灣的糠醛年需求量達 400-700 公噸，然而目前並沒有糠醛生產工廠，主要仰賴中國大陸進口。糠醛是重要的化工原料，可製備耐化性及機械强度高之樹脂，或糠醛衍生物可做為有機溶劑(2-methyltetrahydrofuran)及燃料(2-methylfuran)等。糠醛是由農業廢棄物製備而得，台灣農業發達，農產品及相關廢棄物來源充足，具有大量生產糠醛之優勢。

技術摘要(含成果)：

本技術開發一增進糠醛生產效率的均相觸媒系統，其觸媒組成為硫酸、硫酸鉻(鉻三價離子)、及氯化鈉之混和觸媒，在調整觸媒比例及適當生產條件下，糠醛產率可達 70%。

優勢：

相較於僅有硫酸催化的傳統程序，木糖轉化糠醛之產率僅約 50%，而本發明之觸媒對於硫酸之催化活性具加乘性效果，技術上可將糠醛產率提升至 70% 以上。

競爭產品：

由中國大陸製備及進口的糠醛

專利現況：

中華民國專利申請中，案號：105142637

聯絡方式(請不用填)：

臺大產學合作總中心

Tel: 02-3366-9945, E-mail: ntuciac@ntu.edu.tw



Synergistic effects on catalytic activities of a homogenous catalyst mixed with sulfuric acid, chromium (III) ion and sodium chloride in aqueous solution for furfural production from xylose

PI : Prof. Ben-Zu Wan

Department of Chemical Engineering, National Taiwan U.

Experience:

http://www.che.ntu.edu.tw/ntuche/cht/prof_detail.php?id=35

Market Needs:

Furfural demand in Taiwan is around 400-700 tons annually, and this product now is mainly imported from China. Furfural, which is sourced from agricultural waste, is a renewable biochemical that can be a precursor to a wide range of desired compounds. Taiwan has an advantage for mass production of furfural because abundant agricultural wastes can be obtained.

Our Technology:

This invention relates to the production of furfural from xylose. A process for producing furfural from xylose can be enhanced by using a new homogenous catalyst system. The homogenous catalyst system consists of sulfuric acid, chromium (III) ion and sodium chloride in aqueous solution. 70% of furfural yield can be achieved under the optimized conditions.

Strength:

The yield of furfural production with the catalyst in conventional processes is only 50%, and it can be improved to above 70% with the catalyst developed in this invention.

Competing Products:

Furfural product imported from China

Intellectual Properties:

Patent (ROC) is applying, case number: 105142637

Contact (do not need to fill out):

Center for Industry-Academia Cooperation, NTU

Tel: 02-3366-9945, E-mail: ntuciac@ntu.edu.tw