

以電化學技術處理高難度污水及污泥項目

Commercialization of Electrochemical Technologies for Wastewater and Sludge Treatment

摘要 Summary

工學院土木及環境工程學系講座教授陳光浩率領的團隊開發利用了兩個電化學原理專利技術用於處理污水及污泥。污水處理廠產生的污泥在處理過程中會產生劇毒且有強烈臭味的硫化氫氣體，是極大的隱患。團隊發明的 **LEEO®** 技術，能根除處理污泥時產生的硫化氫，除毒除臭之餘，成本更比現有技術低 20%。

另一個電化學原理專利技術：**ECO®** 技術則針對含有難降解有機污染物的垃圾堆填區滲濾液，採用光電氧化工藝快速達到同類技術難以企及的有機污染物降解效率，減碳排放同時更比現有技術減低一半成本。

LEEO/ ECO 電化學原理專利技術的好處是快速可靠，零化學品添加及不會產生二次污染物。

Prof. CHEN Guanghao, Chair Professor of the Department of Civil and Environmental Engineering at the School of Engineering, led a research team that has applied two electrochemical technologies for sludge and wastewater treatment.

For sludge management, sludge from sewage treatment plants produces highly toxic hydrogen sulphide (H₂S) gas with a strong odor during the treatment process, which poses a great potential hazard. LEEO® was designed to eliminate H₂S gas production through electrochemical oxidation, which removes toxins and odors while costing 20% less than existing technologies.

In addition, ECO® was developed to treat organic pollutants from landfills. By combining electrochemical and photochemical processes, ECO® improves degradation efficiencies, and aims to reduce carbon emissions and cutting costs by half than existing technologies.

The advantages of the patented LEEO® and ECO® are their fast and reliable performance, zero chemical addition and absence of secondary pollutants.

簡歷 Biography

首席研究員 *Principal Investigator* / 負責人 *Person-in-charge*



陳光浩教授，香港科技大學土木及環境工程學系講座教授、環境及可持續發展學部講座教授、國家重金屬污染防治工程技術研究中心（香港分中心）創辦主任、國際水協傑出會士，及「全國首屆創新爭先獎狀」得獎者。

Professor Guanghao CHEN is the Chair Professor of Civil and Environmental Engineering and the Division of Environment of Sustainability of Hong Kong University of Science & Technology (HKUST), Founding Director of the Hong Kong Branch of the Chinese National Engineering Research Center (CNERC) for Control and Treatment of Heavy Metal Pollution (CTHMP). He is a Distinguished Fellow of the International Water Association (IWA) and a recipient of the Chinese National Innovation Pioneer Award.

商品化進度 / 成熟程度 *Commercialization Progress / Maturity*

目前，LEEO®和 ECO®這兩項技術已分別得到香港特別行政區政府渠務署及環境保護署的大力支持，展開示範工程。

Pilot plant trials are currently underway with the support of the Drainage Services Department (DSD) and Environmental Protection Department (EPD) of the HKSAR Government.

港科水創有限公司

港科水創有限公司的成立是為了擴大和加速 LEEO®和 ECO®技術的應用規模，並開發相關的設備系統，研究團隊和工程團隊將會有更多關於先進物料、優化流程和可持續性的研究及發展。

ElequaNova Limited

The startup of ElequaNova Limited is to expand and accelerate the application scale of LEEO® and ECO® technologies, and to develop related equipment systems, the research team and engineering team will conduct more research and development on advanced materials, optimized processes, and sustainability.