



環境催化劑與空氣品質實驗室 Environmental Catalysis and Air Quality Laboratory

實驗室地點: R-408

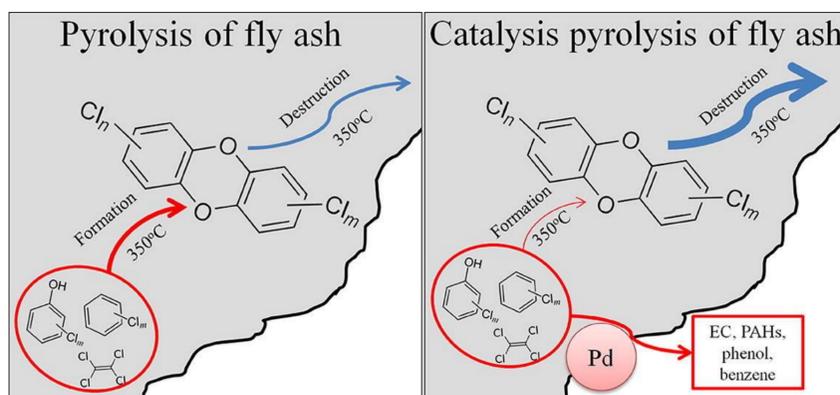
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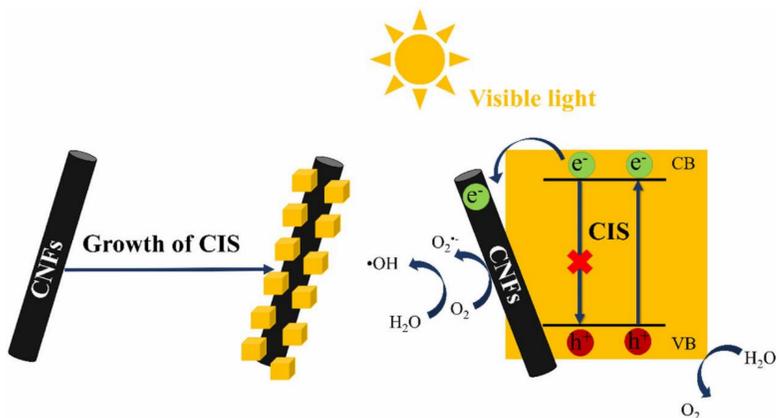
Major Research Topics

Catalytic pyrolysis reaction

Catalytic pyrolysis is an advanced thermal-catalytic process used to destroy polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) present in municipal solid waste incineration (MSWI) fly ash. Because fly ash often contains high concentrations of dioxins, catalytic pyrolysis is investigated as a method to reduce toxicity and enable safer recycling or disposal of ash.



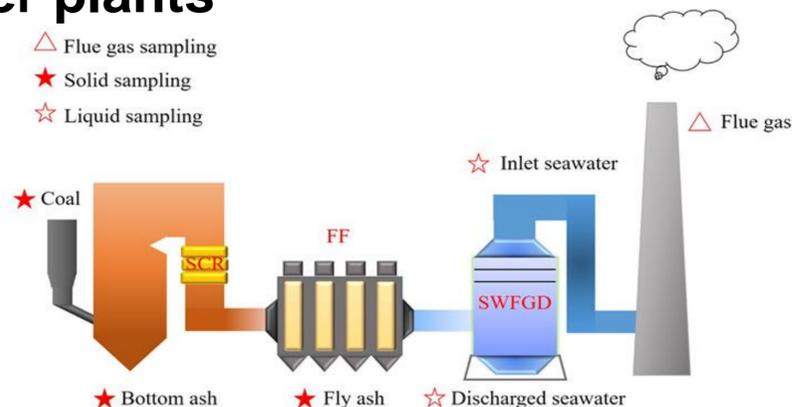
Ozone-assisted catalytic decomposition of VOCs



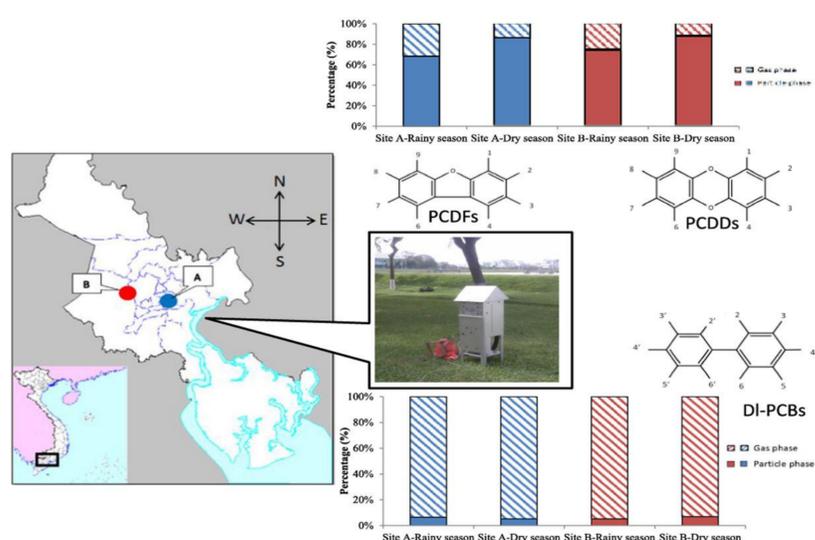
CdIn₂S₄ (CIS) has attracted widespread attention due to its structural stability and photoelectric properties. Carbon nanofibers (CNFs) as a suitable electron acceptor due to its stable physicochemical properties enhanced the mechanical properties. CIS/CNFs composite was synthesized and degradation of toluene reached the optimal level of 86% as the CIS doped with 3% CNFs. Furthermore, 95% removal efficiency was achieved as 200ppm ozone was added into the system.

Mercury emissions from coal-fired power plants

Investigation of mercury emitted from a large-scale coal-fired power plant in Taiwan is conducted. Mercury samples of flue gas were collected on halogen-impregnated carbon sorbent traps following the US EPA Method 30B. Flue gas sampling was conducted by XC-30B Automated MercSampler™ System.



Measurement of atmospheric dioxin concentrations



Atmospheric PCDD/Fs and dl-PCBs samples were collected in Hochiminh city, Vietnam to address the effect of meteorological parameters, especially rainfall, on the occurrence and gas/particle partitioning. The results indicate that PCDD/Fs and dl-PCBs concentrations in industrial site are higher than those measured in commercial and rural sites during both rainy and dry seasons. PCDD/F levels measured in dry season are significantly higher than those measured in rainy season while dl-PCB levels do not vary significantly between rainy and dry seasons.