Aerobic Electrochemical Oxidation of Hydrocarbons

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Overview

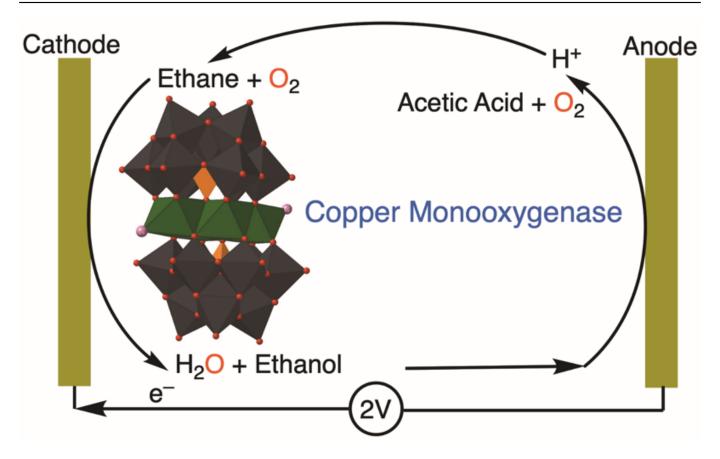
Aerobic oxidation is a key industrial process for producing valuable chemicals from alkenes and alkanes, abundant in petroleum and natural gas. However, existing methods are inefficient and unsustainable. This technology offers a novel, sustainable approach for aerobic electrochemical oxidation of hydrocarbons, utilizing copper-tungsten oxide catalysts to achieve efficient and selective transformations.

Applications

- · Oxidation of ethane to Ethanol and /or Acetic Acid
- Electrocatalytic aerobic oxidation of alkanes and alkenes.Â

Differentiation

- Resource Utilization: Converts otherwise wasted hydrocarbons into marketable products
- Sustainability: Reduces methane and carbon dioxide emissions by converting light hydrocarbons into valuable chemicals
- · Efficiency: Operates under mild conditions with high selectivity producing high yields



Electrocatalysis of ethane to acetic acid using copper–tungsten catalyst in a membrane-less electrolyzer

Development Stage

First proof of concept was demonstrated.Â

References

Bugnola, et al, ACS Catal. 2018 [1]

Patent Status

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