HYDROGEN PRODUCTION

USING WASTEWATER

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WHAT THIS STUDY IS ABOUT

This study provides the first comprehensive review of integrating wastewater treatment with hydrocarbon reforming and explores the potential of wastewater usage for the hydrogen economy.

WHY IT WAS NEEDED

Wastewater treatment is traditionally an energy-intensive necessity, often resulting in significant thermal loss. Simultaneously, hydrogen production via hydrocarbon reforming requires both water and intense heat. Combining these two processes is beneficial to both industries. By using wastewater as a feedstock, industries can both recycle the waste heat that would otherwise be lost and repurpose it for hydrogen generation.

WHAT THE RESEARCH TEAM CONCLUDED

Examining the amount, composition, and current treatment practices of oilfield wastewater, geothermal wastewater, and mining wastes and drainage, the research team found there is potential value in using these in hydrogen production. The three practices the research team has chosen to examine include dissolved organics that may eliminate the need for additional hydrocarbon streams, waste heat from earlier processing which reduces the cost of heating to reformable temperatures, and dangerous contaminants that are known to be remedied by reformation (e.g. hydrogen cyanide).

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