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On-Demand Production of Peracetic Acid

IP Status: Issued US Patent; **Application #:** 11/422,188

Limiting Need to Store and Handle Peracetic Acid

A method using an enzymatic biocatalyst can generate peracids. The process involves adding perhydrolase activity to an esterase enzyme, and optimizing the enzyme activity through targeted mutations. Perhydrolase enzymes form peracetic acid from acetic acid and hydrogen peroxide. Generation of peracids via enzyme biocatalysis allows producing disinfection agents on demand, limiting the need to store and handle highly explosive peracetic acid.

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Peracid Used for Disinfection

Peracids are potent chemicals that have long been used for disinfection in industry, such as disinfection of animal carcasses in the food industry. One of the challenges with using peracids is that their production via chemical routes involves a formulation that is strongly acidic, and the peracids are extremely unstable in solution after they are created.

FEATURES AND BENEFITS OF CREATING PERACETIC ACID ON-DEMAND:

- Able to create peracetic acid on-demand and in solution, which avoid the storage hazards associated with peracetic acid
- Can apply the selection method to tailor enzymes to exhibit selectivity for certain functional groups

Phase of Development Demonstrated for one enzyme

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Life Sciences/Industrial Biotech

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