

Scientists from the Chinese Academy of Sciences have developed an innovative catalyst that could make the production of propylene—a key component in plastics—more environmentally friendly and energy-efficient.

Research indicates that a catalyst based on individual copper atoms can transform propane into propylene at low temperatures using water and sunlight. This discovery may serve as an alternative to traditional methods that require high temperatures and significant energy consumption.

Propylene is widely used in the production of plastics, packaging, and chemical products, but its conventional production processes are typically associated with high carbon emissions. The new catalyst operates at nearly room temperature, reducing energy costs. It consists of copper atoms anchored to a specialized substrate that enhances their activity. When exposed to light, the catalyst breaks down propane molecules and uses water to produce propylene with minimal byproducts.

Lead researcher Wang Ye states this is the first instance where individual metal atoms have demonstrated such efficiency in this type of reaction. The technology is still in the laboratory testing phase but is already drawing attention from the industry.