

Greener process for key ingredient for everything from paint to diapers

February 9 2011

Scientists are reporting discovery of an environmentally friendly way to make a key industrial material -- used in products ranging from paints to diapers -- from a renewable raw material without touching the traditional pricey and increasingly scarce petroleum-based starting material. Their report on a new catalyst for making acrylic acid appears in *ACS Catalysis*, the newest in the American Chemical Society's suite of 39 peer-reviewed scientific journals.

WeiJie Ji, Chak-Tong Au, and colleagues note that acrylic acid is essential for making paints, adhesives, textiles, leather treatments, and hundreds of other products. Global demand for the colorless liquid totals about 4 million tons annually. Acrylic acid is typically made from propylene obtained from petroleum. With prices rising, manufacturers have been seeking alternative ways of making acrylic acid without buying propylene. One possibility involves making it from lactic acid. But current processes for using lactic acid are inefficient, less selective, and require higher temperatures and the accompanying high inputs of energy.

The scientists' potential solution is a new [catalyst](#) that can convert lactic acid into acrylic acid more efficiently. Lactic acid is a classic renewable starting material, produced by bacteria growing in vats of biomass such as [glucose](#) and starch from plants. In laboratory studies, the scientists showed that the new catalyst can convert lactic acid to acrylic acid more selectively at lower temperatures. This could mean better use of lactic acid, lower [fuel consumption](#), and less impact on the environment, the

scientists suggest.

More information: "Efficient Acrylic Acid Production through Bio Lactic Acid Dehydration over NaY Zeolite Modified by Alkali Phosphates" *ACS Catalysis*.

Provided by American Chemical Society

Citation: Greener process for key ingredient for everything from paint to diapers (2011, February 9) retrieved 2 May 2024 from <https://phys.org/news/2011-02-greener-key-ingredient-diapers.html>

| |
|--|
| <p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p> |
|--|