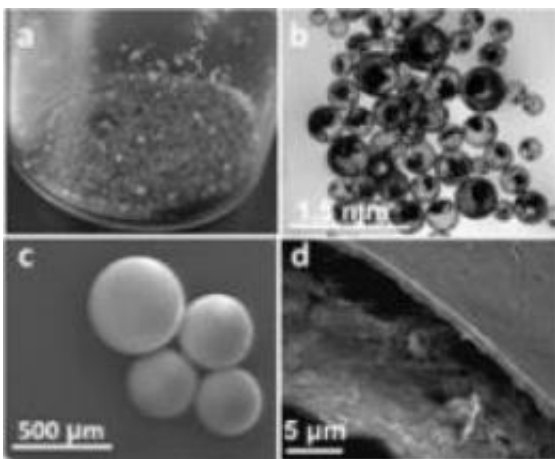


# Next-generation microcapsules deliver 'chemicals on demand'

October 28 2009

---



A new generation of microcapsules, shown above, promise to deliver "chemicals on demand" for a wide range of uses, including medicine and personal care. Credit: The American Chemical Society

Scientists in California are reporting development of a new generation of the microcapsules used in carbon-free copy paper, in which capsules burst and release ink with pressure from a pen. The new microcapsules burst when exposed to light, releasing their contents in ways that could have wide-ranging commercial uses from home and personal care to medicine. Their study appears in the *Journal of the American Chemical Society*.

Jean Fréchet, Alex Zettl and colleagues note that liquid-filled

[microcapsules](#) have many other uses, including self-healing plastics. Those plastics contain one group of microcapsules filled with monomer and another with a catalyst. When scratches rip open the capsules, the contents flow, mix, and form a seal. Microcapsules that burst open when exposed to light would have great advantages, the scientists say. Light could be focused to a pinpoint to kill cancer cells, for instance, or shined over an large area to print a pattern.

The new microcapsules consist of nylon spheres about the size of a grain of sand. They enclose a liquid chemical sprinkled with carbon nanotubes. The nanotubes convert laser light to heat that bursts the nylon capsule, releasing the chemical. Using such a system, doctors, for example, might inject microcapsules containing anti-cancer drugs to specific cells and make the capsules burst upon exposure to laser light, delivering their contents precisely where and when they are needed in the body.

More information: "Chemicals On Demand with Phototriggerable Microcapsules", [Journal of the American Chemical Society](https://pubs.acs.org/stoken/presspac/p.../10.1021/ja905378v), [pubs.acs.org/stoken/presspac/p ... ll/10.1021/ja905378v](https://pubs.acs.org/stoken/presspac/p.../10.1021/ja905378v)

Source: American Chemical Society ([news](#) : [web](#))

Citation: Next-generation microcapsules deliver 'chemicals on demand' (2009, October 28) retrieved 20 April 2024 from <https://phys.org/news/2009-10-next-generation-microcapsules-chemicals-demand.html>

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.