

Small particles show big promise in beating unpleasant odors

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Scientists are reporting development of a new approach for dealing with offensive household and other odors -- one that doesn't simply mask odors like today's room fresheners, but eliminates them at the source. Their research found that a deodorant made from nanoparticles -- hundreds of times smaller than peach fuzz -- eliminates odors up to twice as effectively as today's gold standard. A report on these next-generation odor-fighters appears in ACS' *Langmuir*.

Brij Moudgil and colleagues note that consumers use a wide range of materials to battle undesirable odors in clothing, on pets, in rooms, and elsewhere. Most common household air fresheners, for instance, mask odors with pleasing fragrances but do not eliminate the odors from the environment. People also apply deodorizing substances that absorb smells. These materials include activated carbon and baking soda. However, these substances tend to have only a weak ability to absorb the chemicals responsible for the odor.

The scientists describe development of a new material consisting of [nanoparticles](#) of [silica](#) (the main ingredient in beach sand) — each 1/50,000th the width of a human hair — coated with copper. That metal has well-established antibacterial and anti-odor properties, and the nanoparticles gave copper a greater surface area to exert its effects.

Tests of the particles against ethyl mercaptan, the stuff that gives natural gas its unpleasant odor, showed that nanoparticles were up to twice as effective as the gold standard — activated carbon — at removing the

material's foul-smelling [odor](#). In addition to fighting odors, the particles also show promise for removing sulfur contaminants found in crude oil and for fighting harmful bacteria, they add.

More information: "Copper Coated Silica Nanoparticles for Odor Removal", *Langmuir*.

Provided by American Chemical Society

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