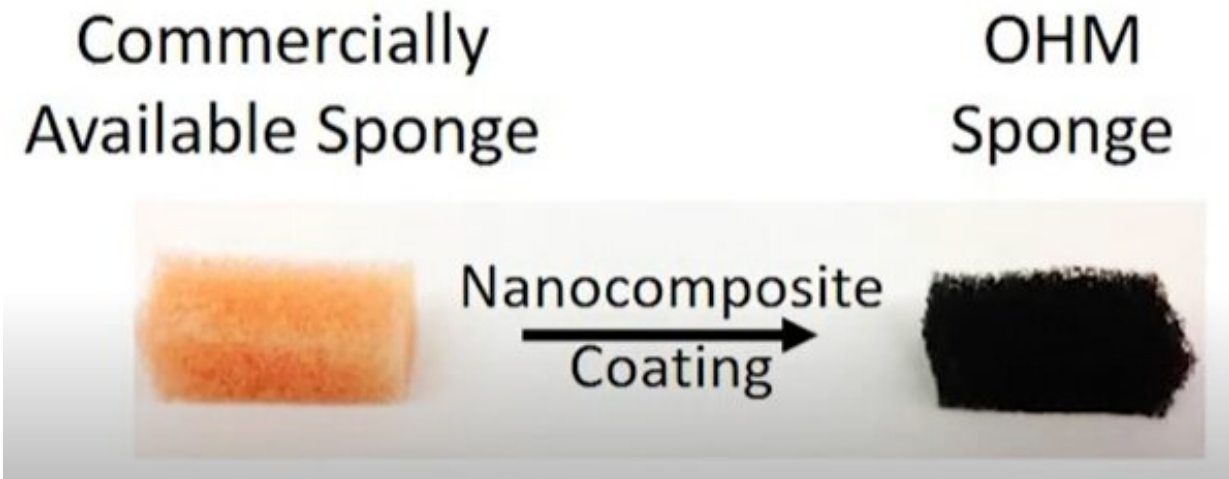


Q&A: Researchers develop sponge that can collect oil, phosphates and now microplastics from polluted waters

April 20 2022, by Win Reynolds



Credit: Northwestern University

With a sponge that looks like one you might find in your kitchen, Northwestern University researchers have discovered how to effectively clean up oil, microplastics and phosphate pollution.

This sponge could help clean up [oil spills](#) without harming [marine life](#) and prevent [algae blooms](#) from forming when phosphate builds up to dangerous levels. To recover and reuse dwindling natural resources—like

oil and phosphate—the sponge can simply be wrung out.

Northwestern engineer Vinayak Dravid, who developed the new tool, said the novel technology can accommodate multiple functions, much like a Swiss Army knife. The sponge absorbs 99% of phosphate ions it encounters and 30 times its weight in oil.

Dravid is the Abraham Harris Professor of Materials Science and Engineering at Northwestern's McCormick School of Engineering and the founding director of the Northwestern University Atomic and Nanoscale Characterization Experimental Center (NUANCE).

Vikas Nandwana is a research assistant professor of materials science and engineering at McCormick and co-founder of MFNS Tech, a startup in the process of commercializing oil-absorbing sponges.

In a Northwestern Q&A, the two professors discuss "silent pollution," the business side of environmental remediation and their sponge-based platform.

What types of pollution can these sponges address?

"Unlike the smokestacks of yesteryears where you can see and feel the pollution in the air, a lot of this pollution is silent," Dravid said. "This [water pollution](#) comes in all kinds, so we want to create a scalable technology which can address remediation."

How does the sponge work?

"Almost half a billion tons of sponges are wasted each year and go to landfills," Dravid said. "All we do is coat a tiny amount of nanotechnology slurry and that makes the sponge much more effective

in capturing the pollutants. So, what we're doing is using waste to clean waste."

"This is just the beginning," Nandwana said. "Different types of nanotechnology coatings can be made that capture a variety of pollutants not only from water, but also from air and soil. Our sponge surely has potential to revolutionize environmental remediation."

What are next steps for introducing the platform to the market?

"We have already successfully tested our oil sponge in [real-world conditions](#) at a test tank within the National Oil Spill Response Research & Renewable Test Facility, which provides independent and objective performance testing of full-scale oil spill solutions," Nandwana said.

Provided by Northwestern University

Citation: Q&A: Researchers develop sponge that can collect oil, phosphates and now microplastics from polluted waters (2022, April 20) retrieved 1 September 2024 from <https://phys.org/news/2022-04-qa-sponge-oil-phosphates-microplastics.html>

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