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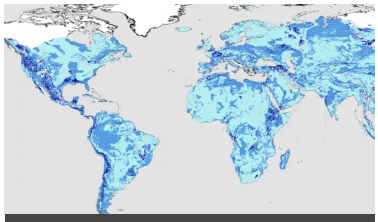

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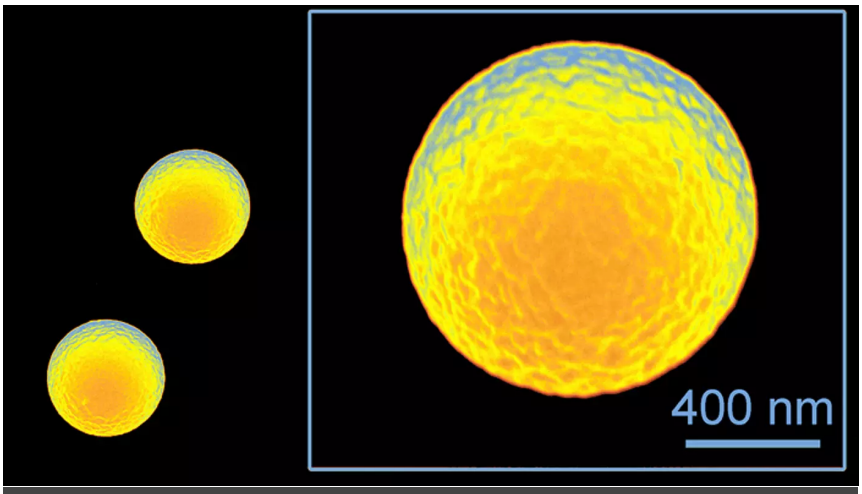
New technique allows for production of drug-delivering silicone microspheres

BEN COXWORTH MAY 8, 2015

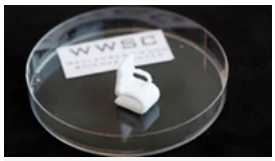


Silicone microspheres made via ultrasonic spray pyrolysis (Image: Kenneth Suslick)

Scientists are increasingly looking at using medication-filled microspheres for targeted drug delivery within the human body. Silicone *would* be a particularly good building material for such spheres, as it's biocompatible, waterproof, and chemically stable. Unfortunately, using traditional methods, it can't be made into small enough spheres. Now, however, a new process has allowed for the creation of silicone microspheres that are about one one-hundredth the size of any previously produced.

Ordinarily, microspheres are made by suspending minuscule droplets of one type of liquid within another type, and then applying heat to cause the droplets to polymerize into solid spheres. When that approach is attempted with silicone, however, the droplets will coalesce with one another when heated – the result is a few larger spheres instead of a bunch of tiny ones.

Led by Prof. Kenneth Suslick, a team from the University of Illinois has instead



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used a technique known as ultrasonic spray pyrolysis.

Utilizing "technology found in household humidifiers," this involves taking the liquid ingredients of silicone and sending them through a heated tube, in the form of a mist. The heat causes the droplets that make up the mist to solidify into the desired tiny spheres, which do *not* stick together as they would in a liquid medium.

The scientists have now created colored, fluorescent and magnetic silicone microspheres, which could conceivably be used not only in the field of medicine, but also in any number of other areas.

"The applications for silicone microspheres, to date, have been almost entirely speculative, simply because no one has been able to actually make them," says Jacqueline Rankin, lead graduate student on the project. "With this new method, silicone microspheres can be easily and readily synthesized, facilitating the exploration of technologies that have only been speculated upon and creating novel technologies and new science in a number of scientific disciplines."

Source: University of Illinois

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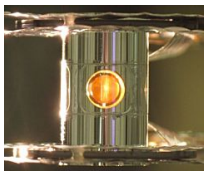

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About the Author

An experienced freelance writer, videographer and television producer, Ben's interest in all forms of innovation is particularly fanatical when it comes to human-powered transportation, film-making gear, environmentally-friendly technologies and anything that's designed to go underwater. He lives in Edmonton, Alberta, where he spends a lot of time going over the handlebars of his mountain bike, hanging out in off-leash parks, and wishing the Pacific Ocean wasn't so far away.

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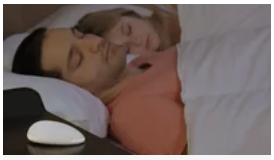

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