

# SoylentNews

## SoylentNews is people

### New "Omniphobic" Coating Created by University of Michigan Researcher

posted by [martyb](#) on Monday April 16, @11:59AM  
from the [what-would-YOU-use-it-on?](#) dept.

[takyon](#) writes:

A University of Michigan researcher has [created a coating](#) that could be used to repel water, oil, and other substances:

In an advance that could grime-proof phone screens, countertops, camera lenses and countless other everyday items, a materials science researcher at the University of Michigan has demonstrated a smooth, durable, clear coating that swiftly sheds water, oils, alcohols and, yes, peanut butter.

Called "omniphobic" in materials science parlance, the new coating repels just about every known liquid. It's the latest in a series of breakthrough coatings from the lab of Anish Tuteja, U-M associate professor of materials science and engineering. The team's earlier efforts produced durable coatings that repelled ice and water, and a more fragile omniphobic coating. The new omniphobic coating is the first that's durable and clear. Easily applied to virtually any surface, it's detailed in a paper published in *ACS Applied Materials & Interfaces*.

Tuteja envisions the new coating as a way to prevent surfaces from getting grimy, both in home and industry. It could work on computer displays, tables, floors and walls, for example.

[...] Ultimately, the team discovered that a mix of fluorinated polyurethane and a specialized fluid-repellent molecule called F-POSS would do the job. Their recipe forms a mixture that can be sprayed, brushed, dipped or spin-coated onto a wide variety of surfaces, where it binds tightly. While the surface can be scratched by a sharp object, it's durable in everyday use. And its extremely precise level of phase separation makes it optically clear.

Just what I needed for my keyboard, VR headset, countertop, toilet bowl, 1 gallon mayonnaise jar, t-shirts, patio deck, sailing ship, the inside of all of my body's cells, and synthetic killer bacteria.

[Smooth, All-Solid, Low-Hysteresis, Omniphobic Surfaces with Enhanced Mechanical Durability](#) (DOI: 10.1021/acsami.8b00521) ([DX](#))

**Related:** [Nissan Testing 'Super-Hydrophobic' and 'Oleophobic' Paint](#)  
[LiquiGlide Slippery Coating Coming Inside Norwegian Mayo Bottles](#)  
[Spray-on "Repellent" Could Make Freezers Frost Free](#)

[Original Submission](#)

### Related Stories

[Nissan Testing 'Super-Hydrophobic' and 'Oleophobic' Paint](#) 24 comments

[kaszz](#) and [AnonTechie](#) wrote:

Not only can car washes be time-consuming and/or expensive, they are a short-term solution. Engineers at Nissan are using '[super-hydrophobic](#)' and '[oleophobic nanotechnology paint](#)' finish called Ultra-Ever Dry that can repel water and oils, as well as dirt, dust, mud and grit on the new Nissan Note. It works by creating a thin air shield above the surface that makes rain, road spray, frost, sleet and standing water roll off without tainting the surface at all. Nissan has no plans of making the special paint standard on factory models but will consider [offering the self-cleaning paint as an aftermarket option](#). Nissan will now determine if the material is [durable for long-term use on vehicles and for the different weather conditions around the globe](#). Nissan has plans to test the technology this summer in Europe, using researchers based in its England technical facility using a Versa Note for testing.

How many times do you roll that dripping, glistening car out of the car wash parking lot only to hit a muddy puddle or rainstorm within the first day or two?

[LiquiGlide Slippery Coating Coming Inside Norwegian Mayo Bottles](#) 31 comments

[takyon](#) updates a story from a few months ago, and writes:

[Orkla Group](#) has become [the first food company to announce a deal](#) with [LiquiGlide Inc.](#), which offers a non-stick coating for the inside of bottles and other food packaging:

Mayonnaise that does not get stuck in its container is being developed by a Norwegian company. Orkla is the first food manufacturer to announce a deal with US company Liquiglidle to use its non-stick coating in product packaging. [...] Liquiglidle says its coating is "completely harmless" and meets safety standards because it "can be made entirely from food".

The company was founded in 2012 to sell licences for a non-stick technology developed at the Massachusetts Institute of Technology. A customised version of the coating is created for each product, resulting in a "permanently wet" surface inside containers that helps the product slip out. It told the BBC it was working with 30 companies, including some of the biggest consumer brands in the US. Orkla's food division generated more than 3bn krone (£246m) of sales in its last quarter. The company said it was still deciding exactly how it would use the technology in its products.

While reducing wasted product may benefit consumers, Liquiglidle suggests it could also encourage shoppers to buy more frequently. The company states on its website: "Liquiglidle makes dispensing product so easy that consumers actually tend to use it faster... it pushes consumers to an earlier repurchase point."

From a [2012 article](#):

The site claims the spray will work on glass, plastic, metal and ceramic surfaces and with any condiment — there's also a similar video showing LiquiGlide's use with mayonnaise. The LiquiGlide site says easy pours will not only prevent wasted quantities, but could also eliminate 25,000 tons of petroleum-based plastics by allowing the use of smaller caps.

While he wouldn't reveal its contents, [Massachusetts Institute of Technology PhD candidate Dave] Smith told Fast Company magazine that LiquiGlide has other potential uses, such as preventing clogs in oil and gas lines. "We've patented the hell out of it," he said.

[Original Submission](#)

[Spray-on "Repellent" Could Make Freezers Frost Free](#) 21 comments

[Phoenix666](#) writes:

On your car windshield, ice is a nuisance. But on an airplane, wind turbine, oil rig, or power line, it can be downright dangerous. And removing it with current methods—usually chemical melting agents or labor-intensive scrapers and hammers—is difficult and expensive work.

But a new durable and inexpensive ice-repellent coating [could change that](#). Thin, clear, and slightly rubbery to the touch, the spray-on formula could make ice slide off equipment, airplanes, and car windshields with only the force of gravity or a gentle breeze.

Researchers say the discovery could have major implications in industries like energy, shipping, and transportation, where ice is a constant problem in cold climates.

The coating could also lead to big energy savings in freezers, which today rely on complex and energy-hungry defrosting systems to stay frost-free. An ice-repelling coating could do the same job with zero energy consumption, making household and industrial freezers up to 20 percent more efficient. [The paper is published in the journal Science Advances](#) [open, DOI: 10.1126/sciadv.1501496].

Essentially, the rubbery coating jiggles and shakes the ice off.

[University of Michigan source](#).

[Original Submission](#)

(1)

- **industrial efficiency (Score: 3, Interesting)** by [takyon](#) on Monday April 16, @12:06PM

by [takyon \(881\)](#) ★ <[reversethis-{gro ... s} {ta} {noykat}](#)> on Monday April 16, @12:06PM ([#667591](#)) [Journal](#)

The coating could also be used in refrigeration, power generation and oil refining -- all industries that depend on the condensation of liquids. The new coating could enable equipment to slough off condensed water and chemicals more quickly, increasing efficiency by up to 20 percent. That's a game changer, as those industries are some of the world's most high-volume and energy-intensive.

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[SIG] 10/28/2017: [Soylent Upgrade v14](#) [soylentnews.org]

- **like teflon (Score: 0)** by **Anonymous Coward** on Monday April 16, @12:18PM (2 children)

by **Anonymous Coward** on Monday April 16, @12:18PM ([#667595](#))



Sounds like Teflon, another fluorinated plastic. Teflon (Polytetrafluoroethylene ) is plenty slippery but fairly soft. Teflon is also relatively expensive compared to other plastics. I wonder what this new stuff will cost when used in volume manufacturing? And fluorine is not the best stuff to work with, will there be environmental problems?

◦ **Re:like teflon (Score: 3, Informative) by takyon on Monday April 16, @12:25PM (1 child)**

by [takyon \(881\)](#) ★ <[reversethis-{gro... s} {ta} {noykat}](#)> on Monday April 16, @12:25PM ([#667596](#)) [Journal](#)

They want to give it to our kids right away!

The research team is also doing further studies to ensure that the coating is nontoxic for use in places like daycare centers. Tuteja estimates that the coating could go to market within the next two years, and he believes childproof coatings are just the beginning.

About as close as I can get you on Wikipedia:

<https://en.wikipedia.org/wiki/Silsesquioxane> [wikipedia.org]

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[SIG] 10/28/2017: [Soylent Upgrade v14](#) [soylentnews.org]

▪ **Re:like teflon (Score: 0) by Anonymous Coward on Monday April 16, @12:47PM**

by Anonymous Coward on Monday April 16, @12:47PM ([#667599](#))

> They want to give it to our kids right away!

Rush it to market because the cost of keeping kid-stuff clean might bankrupt the country?

How long was BPA (for just one example of a nasty chemical) used in food containers before it was identified as something to be avoided? Personally, we have glass storage containers for leftovers...

• **Boating (Score: 2) by Bobs on Monday April 16, @12:50PM**

by [Bobs \(1462\)](#) on Monday April 16, @12:50PM ([#667601](#))

I wonder how durable this is in marine environments, what the friction coefficient is, and how toxic?

Could be a nice way to speed up some watercraft.

• **unusable (Score: 2) by Bot on Monday April 16, @12:56PM**

by [Bot \(3902\)](#) ★ on Monday April 16, @12:56PM ([#667603](#))

I got near an omniphobic container. Told me: you aren't one of those dirty hippie homosexuals are you? can't stand them...

(1)

*Man who arrives at party two hours late will find he has been beaten to the punch.*