

Microwaving the coronavirus

Your questions, answered

We've received an uptick in questions about microwaving things to kill the virus, including these two today:

"If you have a face mask with no metal in it. Can you sterilize it in the microwave or with UV light for re-use?" — Van Lewis, Virginia

"Our mail is about the only thing we have coming into our home. Can we disinfect it, like by putting it in the microwave for one minute?" — Jack Elwell, California

We asked Benjamin Neuman, the chair of the Biological Sciences department at Texas A&M University at Texarkana. Neuman said **there is actually some research that shows some viruses can be killed by being microwaved.**

"One study from 2004 demonstrated that microwaving on high in a 900-watt microwave for as little as 5 seconds was able to inactivate a chicken coronavirus on cotton swabs," Neuman told us via email.

But those experiments were done in a controlled lab setting, and the scientists knew exactly what they were microwaving and how much virus was on the swabs. There are a lot of unknowns in our own kitchens — how much wattage our microwaves are actually pumping out, how much virus is on the material and what that material is really made of.

"But any inactivation protocol would probably have to take into account the size and material to be sterilized," Neuman said. "And microwaving could be

hard on some kinds of mail — there are some kinds of paper that print via heat rather than ink, and those would probably become unreadable if microwaved.”

Even if microwaving the virus kills it, which scientists haven't verified, there's still risk in microwaving anything other than food.

First, many masks — especially the super-effective N95 ones — have a little metal bar across the top that the wearer is supposed to use to form a seal around the top of the nose. Neuman said there's also a plastic box that holds the filter that will melt. **So N95 masks absolutely cannot go in a microwave.**

Second, the materials in other masks, even non-N95 masks, could be damaged by the heat of the microwave, rendering them ineffective.

Finally, mail and other paper could be damaged or even catch on fire if put in the microwave.

Some reassuring news: even though the virus lives on paper or cardboard surfaces for some amount of time, the risk of catching the virus from those surfaces is very low, according to Joseph G. Allen, an assistant professor of exposure and assessment science at Harvard University's T.H. Chan School of Public Health. [You can read his excellent op-ed on that subject here.](#)

If you can't get past the idea of opening mail during the outbreak, the safest thing to do would probably be to quarantine it in a closet for two or three days and open it after the virus dies naturally.

Thanks to reporter [Joel Achenbach](#) for helping get to the bottom of these very good reader questions.

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