



## Copper Kills Corona-virus

by Franklin Bronze Precision Components

**F**ranklin Bronze Precision Components has the capabilities and expertise to cast an antimicrobial, lead free metal, bronze alloy CDA 87850, as door handles, knobs, brackets, fixtures and more to help mitigate the spread of COVID-19 and flatten the curve. Public areas, hospitals and medical facilities can benefit.

According to the EPA, the surfaces of copper and its alloys, such as brass and bronze, are antimicrobial.<sup>[1]</sup> Copper alloy surfaces have intrinsic properties to destroy a wide range of microorganisms – including COVID-19. On copper alloys, the corona-virus was “rapidly inactivated.”<sup>[2]</sup> Over 99.9% of E. coli microbes are killed after just 1-2 hours on copper. On stainless steel surfaces, the microbes can survive for weeks.<sup>[3]</sup> The corona-virus lives on copper for 4 hours, on cardboard for 1 day, and on plastic for 3 days.<sup>[4]</sup>

Copper would be best deployed, according to Bill Keevil, professor of environmental healthcare at the University of Southampton, in hospitals and medical facilities.<sup>[5]</sup>

If copper was used more frequently in hospitals, where 1 in 31 people get healthcare-acquired infections (HAI), or in high-traffic areas, where many people touch surfaces teeming with microbial life—it could play an invaluable role in public health, said Michael Schmidt, a professor of microbiology and immunology at the Medical University of South Carolina, who studies copper.<sup>[6]</sup>

In the U.S. alone, there are about 1.7 million infections and 99,000 deaths linked to HAIs (healthcare-acquired infections) per year, which cost between \$35.7 and \$45 billion annually, from the extra treatments people need when they get infected.<sup>[7]</sup>

Above: Antimicrobial door handles cast by Franklin Bronze using C87850, Eco brass, a lead-free brass alloy designated and registered by the Federal EPA to be antimicrobial.

“We’ve seen viruses just blow apart,” says Bill Keevil, professor of environmental healthcare at the University of Southampton. “They land on copper and it just degrades them.”<sup>[6]</sup>

Schmidt said that one of the reasons scientists are worried about the current corona-virus is how infectious it is, and a major way people might be getting it is from touching contaminated surfaces.<sup>[6]</sup>

### Why Copper Is Antimicrobial

“Copper is continuously working 24/7 without supervision, without any need to intervene, and it never runs out,” Schmidt said. “As long as the metal’s there, it’s good to go.”<sup>[6]</sup>

On copper surfaces, bacteria and viruses die. When a microbe lands on a copper surface, the copper releases ions, which are electrically charged particles. Those copper ions blast through the outer membranes and destroy the whole cell, including the DNA or RNA inside. Because their DNA and RNA are destroyed, it also means a bacteria or virus can’t mutate and become resistant to the copper, or pass on genes (like for antibiotic resistance) to other microbes.<sup>[6]</sup>



Copper would be best deployed in hospitals and medical facilities.

### Cost of Copper vs Saving Lives

Schmidt said that “using copper along with standard hygiene protocols has been shown to reduce bacteria in health care settings by 90 percent.” [6]

Bill Keevil, a professor of environmental healthcare at the University of Southampton in England: “if copper surfaces were put in communal areas where many people gather, it could help reduce the transmission of respiratory viruses, like corona-virus 229E and also SARSCoV2.” Other than hospitals, he thinks the ideal locations for copper are public transportation systems, like buses, airports, subways. [6]

Even when factoring in how much the copper costs initially, you’d make that money back in savings within two months, Schmidt said. And considering that copper never loses its microbial killing abilities—hospitals would quickly be saving money (and lives). [6]

### Antimicrobial Benefit Dwarfs the Drawbacks of Copper

Some prefer not to use copper due to its propensity to tarnish and requires polishing to keep it shining.

“But copper is antimicrobial regardless of how grody it looks, if it turns green on you, it still has the ability to kill bacteria and viruses and fungi,” Schmidt said. [6]

In our view, green is good.

### Bronze Door Handles, Knobs, Brackets, Fixtures and More

Franklin Bronze Precision Components can cast door handles, knobs, brackets, fixtures and more in an antimicrobial, lead free metal, bronze alloy CDA 87850 to help mitigate the spread of COVID-19 and flatten the curve.

And frankly, it’s in our name.

For more information, contact sales@franklinbronze.com.



Franklin Bronze Precision Components’ team setting up a pour.



Ideal locations for copper are public transportation systems.

### References

- [1] [https://en.wikipedia.org/wiki/Antimicrobial\\_copper-alloy\\_touch\\_surfaces](https://en.wikipedia.org/wiki/Antimicrobial_copper-alloy_touch_surfaces)
- [2] <https://mbio.asm.org/content/6/6/e01697-15>
- [3] [https://en.wikipedia.org/wiki/Antimicrobial\\_properties\\_of\\_copper](https://en.wikipedia.org/wiki/Antimicrobial_properties_of_copper)
- [4] <https://www.businessinsider.com/how-long-can-coronavirus-live-on-surfaces-how-to-disinfect-2020-3>
- [5] <https://www.dwell.com/article/copper-brass-disinfect-coronavirus-covid-19-d0c45789>
- [6] Copper Destroys Viruses and Bacteria.Why Isn't It Everywhere? By Shayla Love
- [7] <https://www.fastcompany.com/90476550/copper-kills-coronavirus-why-arent-our-surfaces-covered-in-it>