

# The Fomite Journey of SARS-CoV-2

## Understanding the Lifecycle of SARS-CoV-2 on Products and Packaging

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SARS-CoV-2 is a betacoronavirus, like MERS-CoV and SARS-CoV, and is thought to spread mainly from person-to-person through close contact and respiratory droplets ([www.cdc.gov](http://www.cdc.gov)). However, researchers are beginning to address the stability of the virus at multiple temperatures, on numerous surfaces, and suspended in aerosols. Understanding fomite transmission (i.e., transmission of the virus from an inanimate object) can be very important for businesses, product manufacturers, and consumers.



Generally, coronaviruses survive for shorter periods at higher temperatures and higher humidity than in cooler or dryer environments ([www.cdc.gov](http://www.cdc.gov)). Preliminary research on stability has shown that the SARS-CoV-2 virus is highly stable at 4°C (39°F) and sensitive to heat, especially above 70°C (158°F), and is more stable on plastic (72 hours) and stainless steel (48 hours) than on copper (4 hours) and cardboard (24 hours). No infectious virus could be recovered from printing and tissue papers after a 3-hour incubation and residency times were typically longer on smooth surfaces. The virus has reportedly been shown to remain viable in aerosols for 3 hours ([Chin et. al 2020](#); [Van Doremalen et. al. 2020](#)). The US Centers for Disease Control and Prevention (CDC) stated that transmission of coronavirus occurs more commonly through respiratory droplets than fomites. Current evidence suggests that SARS-CoV-2 may persist on surfaces for a few hours or up to several days ([www.cdc.gov/](http://www.cdc.gov/)).

In a recent interview, Dr. Charles Gerba, a professor of public health and microbiology at the University of Arizona, stated that plastic packaging and plastic packing tape have a higher transfer rate, which may increase a person's chances of picking up the virus ([www.businessinsider.com/](http://www.businessinsider.com/)).

With a heightened concern about methods of transmission and the rapidly evolving state of the knowledge or mis-knowledge, consumers, customers and delivery agents, either direct or through distribution, may be worried about the potential for transmission through products and their associated packaging as they are brought into the home or retail outlet. Health and Policy based organizations and administrations have provided guidelines and supplemental information on the safety of packaging, distribution, and delivery:

- The World Health Organization (WHO) has stated “the likelihood of an infected person contaminating commercial goods is low and the risk of catching the virus that causes COVID-19 from a package that has been moved, travelled, and exposed to different conditions and temperature is also low” ([www.who.int/](http://www.who.int/)).

- The US Food and Drug Administration (FDA) stated that there is no evidence of food or food packaging being associated with transmission of COVID-19. In addition, they “do not anticipate that food products would need to be recalled or be withdrawn from the market because of COVID-19, as there is currently no evidence to support the transmission of COVID-19 associated with food or food packaging. Additionally, facilities are required to control any risks that might be associated with workers who are ill regardless of the type of virus or bacteria” ([www.fda.gov/](http://www.fda.gov/)).
- The California Department of Public Health (CDPH) stated that it is “not aware of any reports at this time of human illnesses that suggest COVID-19 can be transmitted by food or food packaging” ([cdph.ca.gov](http://cdph.ca.gov)) and the Washington State Department of Agriculture and Washington State University “reiterates that there is no current evidence that coronaviruses are transmitted via food or food packaging” ([agr.wa.gov/](http://agr.wa.gov/)).
- The US Postal Service (USPS) reported “the CDC, the World Health Organization, as well as the Surgeon General” have all determined there is no current evidence that COVID-19 is or can be spread through the mail service ([usps.com/](http://usps.com/)).

Given products and packaging may be handled by numerous individuals as they make their way from manufacturer to consumer, until more information is known on the ability of SARS-CoV-2 to survive on inanimate objects, it is important for businesses and product manufacturers to take precautions to ease concerns of consumers, customers, and workforces by implementing and continuing to follow current and updated CDC guidelines for business and employers. These guidelines include information on planning, preparing, and responding to COVID-19:

- Monitoring your workforce and requiring sick employees to stay home, identifying possible exposure routes in your facility or business, if needed separating sick employees, and educating employees on how they can reduce the spread of COVID-19 by encouraging safe work practices including physical distancing, hand washing, and mask and glove wearing.
- Maintaining healthy business operations by identifying a workplace COVID-19 coordinator, assessing essential functions, determining how the business will operate if absenteeism spikes, and considering reorganization of workspaces or floor design to encourage social distancing.
- Maintaining a healthy work environment by considering improving the engineering controls using the building ventilation system, supporting respiratory etiquette and hand hygiene for employees, customers, and worksite visitors, performing routine environmental cleaning and disinfection, and performing enhanced cleaning and disinfection after persons suspected/confirmed to have COVID-19 have been in the facility. More information on cleaning and disinfecting surfaces can be found in a previous article by Jason Lang CIH, CSP, Senior Manager at RHP Risk Management, titled [“Cleaning & Disinfecting Amid COVID-19, Health & Indoor Air Quality Implications”](#).

Resource: US Centers for Disease Control and Prevention Interim Guidance for Businesses and Employers website: <https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html>

While commercial goods move, travel, and encounter varying conditions and temperatures, CDC and WHO guidance also applies to mail and delivery system transport equipment and personnel,

including enhanced cleaning, social distancing, and personal protective equipment (PPE). For direct consumer distribution, delivery partners are advised to reduce contact with customers by placing packages at the doorstep and stepping back ([osha.gov](https://www.osha.gov)). Although no regulatory recommendation has been made regarding the use of paper instead of plastic packaging materials (e.g., tape, wrap), the virus is less stable on paper, supporting the use of paper over plastic packing products as well as wiping plastic materials with a disinfectant ([Chin et. al 2020; www.businessinsider.com/](https://www.businessinsider.com/)). Attention of late has turned to the potential power of ultraviolet light to sanitize surfaces that have come in contact with the SARS-CoV-2 virus. Ultraviolet light disinfection technology has been around for a while and a small market already exists for UV-C disinfection products in medical contexts. However, practical, large-scale efficacy against the spread of SARS-CoV-2 has yet to be shown. (<https://www.sciencedaily.com/>)

As the COVID-19 pandemic continues and more information becomes available, we must remember to remain informed and continue to follow the most up-to-date safe and effective hygiene and work practices.

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*For more resources concerning COVID-19, visit [www.rhprisk.com/coronavirus](http://www.rhprisk.com/coronavirus)*