

## Can SARS-CoV-2 Be Transmitted Via Food And Objects?

Updated BfR FAQ dated 3 May 2022

*Changes made to the version dated 09 April 2021:*

- *Addition of new BfR study findings on the stability of coronaviruses on glass surfaces and their removal using conventional rinsing methods*
- *Updated with selected newly published studies on the stability of coronaviruses*

After the outbreak of the respiratory tract disorder COVID-19 caused by an infection with the new type of coronavirus SARS-CoV-2, and the resulting epidemic in various regions of China, the virus has spread around the world. Consumers have asked the German Federal Institute for Risk Assessment (BfR) whether the virus can also be transmitted to humans via food or products such as children's toys, mobile phones, objects such as door handles, tools, etc. as well as dishes and cutlery. Against this background, the BfR has summarised the most important questions and answers on the topic.

### **What do we know so far about the viral respiratory disease COVID-19?**

The new type of respiratory tract disorder COVID-19 is based on an infection with the new type of coronavirus SARS-CoV-2. Knowledge about the exact transmission methods of this coronavirus is still limited. However, the transmission methods of other closely related coronaviruses are well known. Different types of coronavirus typically trigger conventional colds in humans. In addition, other coronaviruses such as SARS- and MERS-CoV have occurred in the past, leading to severe respiratory diseases. The main target organs of coronaviruses in humans are the respiratory tract organs.

The most important transmission pathway of SARS-CoV-2 is considered to be a so-called "droplet infection", in which the viruses are released into the air by infected people via droplets - for example, when sneezing or coughing - and then inhaled. In certain situations, aerosol transmission (droplet nuclei, smaller than five micrometres) - for example, when speaking - also seems possible. Furthermore, transmission via contact or smear infections cannot be ruled out. In those cases, pathogens located on the hands primarily enter the mucus membranes of the nose or eyes, where they may lead to an infection.

The distribution of virus docking sites (receptors) in the human body also suggests that transmission mainly takes place via the respiratory tract. SARS-CoV-2 requires the two proteins ACE2 and TMPRSS2 to penetrate host cells. Different types of cells produce these proteins in humans. However, according to new findings certain cells in the mucous membrane of the nose produce particularly large quantities of these proteins. It is, therefore, assumed that SARS-CoV-2 primarily uses the nose as a port of entry:

- [https://www.cell.com/cell/pdf/S0092-8674\(20\)30675-9.pdf](https://www.cell.com/cell/pdf/S0092-8674(20)30675-9.pdf)

You will find more information on these transmission methods (in German) from the Robert Koch Institute (RKI) at

- [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Steckbrief.html](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html)

(here: 1<sup>st</sup> Transmission methods)

The RKI is in close contact with the World Health Organisation (WHO) and monitors all up-to-date news about the event.

- <https://www.rki.de> and
- [https://www.rki.de/SharedDocs/FAQ/NCOV2019/FAQ\\_Liste.html](https://www.rki.de/SharedDocs/FAQ/NCOV2019/FAQ_Liste.html)

In special cases, orders are issued by the local public health offices, which can be consulted on specific questions:

- <https://tools.rki.de/PLZTool/>

### **Can you become infected with coronaviruses via food or objects?**

There are currently no documented cases that have shown any evidence of humans being infected with the SARS-CoV-2 via the consumption of contaminated food. There is also currently no reliable evidence of transmission of the virus via contact with contaminated objects or contaminated surfaces, which would have led to subsequent human infections. However, transmission through smear infections via surfaces that were contaminated with viruses cannot be ruled out.

### **Can coronaviruses be transmitted by touching surfaces such as cash, card terminals, doorknobs, smartphones, shopping cart handles, packaging, bags or (sports) balls?**

The BfR is not aware of any infections with SARS-Cov-2 via this transmission method. In principle, coronaviruses can reach surfaces directly through sneezing or coughing from an infected person and remain infectious for a while. A smear infection to another person then appears to be possible if the virus is transmitted shortly afterwards via the hands to the mucous membranes of the nose or eyes. To protect yourself from virus transmission via contaminated surfaces, it is important to observe the general rules of everyday hygiene, such as washing your hands regularly and keeping your hands away from your face.

In a published study, infectious SARS-CoV-2 could be detected up to 48 hours after contamination of banknotes and up to 24 hours after contamination of coins. The study also showed that transferring the dried virus from banknotes or coins to the skin is ineffective; only between 0.1% and 10% of the virus was transmitted. The authors conclude that transmission of SARS-CoV-2 via cash is unlikely.

- <https://www.sciencedirect.com/science/article/pii/S2589004221008762?via%3Dihub>

### **Do coronaviruses remain infectious outside of human or animal organisms on solid and dry surfaces?**

The stability of coronaviruses in the environment depends on several factors, such as temperature, air humidity and surface conditions, as well as the specific virus strains and the virus quantity. In general, human coronaviruses are not particularly stable on dry surfaces. Inactivation in dry conditions generally occurs within a period from a few hours to a couple of days.

Laboratory tests by an American working group for the new type of coronavirus SARS-CoV-2 show that it can remain infectious for at least 3 hours as an aerosol, up to 4 hours on copper surfaces, up to 24 hours on cardboard and up to 2-3 days on stainless steel and plastic following heavy contamination.

- [https://www.nejm.org/doi/full/10.1056/NEJMc2004973?url\\_ver=Z39.88-2003&rfr\\_id=ori%3Arid%3Acrossref.org&rfr\\_dat=cr\\_pub%3Dpubmed](https://www.nejm.org/doi/full/10.1056/NEJMc2004973?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed)

Another study by an Australian working group has concluded that, under different laboratory conditions, SARS-CoV-2 was detectable for up to 28 days at 20 °C on various surfaces such as glass, stainless steel and paper.

- <https://virologyj.biomedcentral.com/articles/10.1186/s12985-020-01418-7>

Data from another published study indicates that SARS-CoV-2 can remain infectious on a metal surface for several days, even at elevated temperatures (30 °C). However, drying the surface within one hour led to a significant reduction in infectability (100-fold reduction).

- [https://www.journalofinfection.com/article/S0163-4453\(20\)30352-2/fulltext](https://www.journalofinfection.com/article/S0163-4453(20)30352-2/fulltext)

According to this, the laboratory-confirmed stability of the SARS-CoV-2 coronavirus is, in most cases, much less than for many other pathogens, e.g. various non-enveloped viruses or bacteria spores. The stability of these viruses mentioned in the studies was determined in a laboratory under optimum conditions and with high concentrations of the virus. In practice, it is expected that due to additional factors, such as daylight, fluctuations in temperature and humidity, and lower contamination levels, the stability of the SARS-CoV-2 coronavirus is lower than in the laboratory studies.

Consumers can protect themselves against virus transmission via surfaces and food by observing the general rules of hygiene. This includes, among other things:

- regular hand washing and keeping hands away from the face
  - Thoroughly washing the hands after contact with food and its packaging
  - Adequately washing and heating food
- <https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>

### **Can imported goods from regions where the disease has spread be sources of an infection in humans?**

Due to the transmission methods recorded thus far, and the relatively low environmental stability of coronaviruses, it is unlikely that imported goods such as cosmetics or consumer goods and toys, tools, computers, clothes or shoes may be sources of an infection with the new type of coronavirus according to the current state of knowledge. Imported refrigerated or frozen food produced in unhygienic conditions in regions affected by SARS-CoV-2 could contain the virus. However, transmission of SARS-CoV-2 via food has not yet been determined. Basically, the general rules of hygiene should be observed when preparing food.

- <https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>

### **Can dock workers, employees of forwarding companies handling containers or people who process imported semi-finished products, components or other prefabricated products become infected with the novel pathogen?**

Due to the low environmental stability of coronaviruses, a transmission of the pathogen via this method seems unlikely in most cases. The German Federal Institute for Occupational Safety and Health and the Committee for Biological Agents, are responsible for assessing possible risks concerning infectious agents at the workplace.

- <https://www.baua.de/DE/Angebote/Aktuelles/Meldungen/2020/2020-01-30-Coronavirus.html>

**How can we protect ourselves from being infected by the virus via food and products (including cosmetics)?**

Although transmission of the virus via contaminated food or imported products is unlikely, the general rules of everyday hygiene such as regular hand washing and the hygiene rules for preparing food (<https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>) should be observed when handling these items. Coronaviruses cannot multiply in food as they need a living animal or human host to do this. As the viruses are sensitive to heat, the risk of infection can also be further reduced by heating foods.

Cosmetic products, such as lipsticks or make-up, should not be used by several people and creams from opened pots should only be removed with thoroughly washed hands or a clean spatula.

**Can SARS-CoV-2 be transmitted via dishes and cutlery in canteens and other communal catering facilities?**

In principle, coronaviruses can reach cutlery or dishes directly through sneezing or coughing from an infected person and remain infectious for a while on these solid surfaces. A smear infection then appears to be possible if the virus is transmitted via cutlery or the hands to the mucous membranes of the nose or eyes. However, the BfR is not yet aware of any infections with SARS-CoV-2 via this transmission method.

**Is the virus inactivated by washing up by hand or using the dishwasher?**

As enveloped viruses, the genetic material of which is coated by a layer of fat (lipid layer), coronaviruses react sensitively to substances that dissolve fat, such as alcohols or surface-active agents, which are contained in soaps and dish washing detergents as grease removers. Although specific data is not yet available for SARS-CoV-2, it is likely that these substances damage the virus surface and render the virus inactive. In a current research project at the BfR, it was shown using the human coronavirus 229E, which is related to SARS-CoV-2, that most commercially available dish washing detergents sufficiently inactivate the coronaviruses in dishwater at a temperature of 23 °C within 15 seconds. A higher temperature of 43 °C and a longer exposure time of 60 seconds was only necessary for a detergent with a lower total surfactant content. It can be assumed that cleaning in the dishwasher at 60 °C or higher removes coronaviruses particularly efficiently.

**Do coronaviruses remain infectious on textiles?**

Currently, the BfR has no information on how long the SARS-CoV-2 virus remains infectious on textiles or in the washing machine. As enveloped viruses, the genetic material of which is coated by a layer of fat (lipid layer), coronaviruses generally react sensitively to substances that dissolve fat, such as surface-active agents, which are contained in detergents as grease removers. In everyday life, people in private households can wash their laundry as usual.

Clothes, bedding, underwear, towels, flannels, etc. of ill persons as well as textiles that have come into contact with infectious bodily fluids should be washed in the washing machine at a temperature of at least 60°C with a heavy-duty detergent and dried thoroughly. When handling laundry of ill persons, direct contact of skin and clothing with contaminated materials should be avoided, the laundry should not be shaken and hands should be washed thoroughly afterwards. You will find more information from the Robert Koch Institute (RKI) at

- [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/ambulant.html](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/ambulant.html)

and the Federal Centre for Health Education at

- <https://www.infektionsschutz.de/hygienetipps/haushaltshygiene.html>

### **Can home-made fabric masks (“community masks”) prevent the transmission of coronaviruses?**

The Robert Koch Institute explains when it makes sense to wear a mouth or nose protection in public against the new type of coronavirus:

- [https://www.rki.de/SharedDocs/FAQ/NCOV2019/FAQ\\_Liste.html](https://www.rki.de/SharedDocs/FAQ/NCOV2019/FAQ_Liste.html)

The German Federal Institute for Drugs and Medical Devices (BfArM) provides information on the different medical protection and performance features of the various types of masks (“community masks”, mouth and nose protection, filtering half masks):

- <https://www.bfarm.de/SharedDocs/Risikoinformationen/Medizinprodukte/DE/schutzmasken.html>

You will also find rules here for people who wear a community mask as well as instructions for cleaning the masks.

Furthermore, the instructions for cleaning a “community mask” depend on the shaping materials that are sewn into it (plastic, metal) and the manufacturer’s specifications for the textiles used. Textiles can contain a variety of chemical substances. They give the textiles the desired properties, such as colour, shape, adhesion or water repellency. Residues of these chemicals can sometimes remain on the textiles after production and so are released on wearing. New textiles should, therefore, be washed first before wearing, especially if they come into contact with the mouth and nose as part of a home-made community mask.

Masks with nano-silver are currently available in stores and on the internet. Little is known about the effect of nano-silver on viruses. There are isolated studies for coronaviruses that show a moderate inactivating effect, which also depends on the type of nanoparticles and their application. A first study was recently published for SARS-CoV-2, in which an inactivating effect of a silver nanocluster solution applied to a respiratory mask is described.

- <https://www.sciencedirect.com/science/article/pii/S2666539520300067?via%3Dihub>

Differences between the various forms of silver exists with regard to absorption in the organism, as well as distribution and the possible effect on cells and tissues. Thus, knowledge gained about the health risks of a certain form of silver cannot be directly transferred to other forms.

When wearing “community masks”, it should be borne in mind that silver ions can also be released through breath condensate or saliva. A conclusive assessment of the health risks of masks coated with silver is currently not possible due to a lack of studies and data.

In addition, the long-term risks of such products, such as the effects on the skin’s microflora and the possible development of bacterial resistance, have not been adequately researched to date.

As already described in Opinion 024/2010 ([https://www.bfr.bund.de/cm/343/bfr\\_raet\\_von\\_nanosilber\\_in\\_lebensmitteln\\_und\\_produkten\\_des\\_taeglich\\_bedarfs\\_ab.pdf](https://www.bfr.bund.de/cm/343/bfr_raet_von_nanosilber_in_lebensmitteln_und_produkten_des_taeglich_bedarfs_ab.pdf)), the BfR therefore recommends avoiding the use of nanoscale silver and nanoscale silver compounds in food and in consumer products until there is sufficient data to provide a conclusive assessment of

the health risks associated with the exposure of consumers, and crucial unanswered questions about the spread of resistance have been clarified.

### **Can coronaviruses be transmitted via bakery goods or fresh fruit and vegetables?**

The BfR is not yet aware of any infections with SARS-CoV-2 via this transmission route. Coronaviruses can generally reach bakery products or fruit and vegetables through an infected person sneezing or coughing directly on them. They cannot multiply in food, as they need a living animal or human host to do this. A smear infection to another person then appears to be possible if the virus is transmitted shortly afterwards via the hands or the food itself to the mucous membranes of the nose or eyes.

To protect yourself from virus transmission, it is crucially important to observe the general rules of everyday hygiene such as washing your hands regularly and keeping your hands away from your face. Bakery products in retail stores are usually protected from sneezing and coughing by customers by splash guards at the counter or self-service counters; these minimise the risk of contamination. When preparing fruit and vegetables, the general rules of hygiene should be observed, which include thorough washing of the food and frequent hand washing during the handling.

- [https://www.baua.de/DE/Themen/Arbeitsgestaltung-im-Betrieb/Biostoffe/FAQ/FAQ-2\\_node.html](https://www.baua.de/DE/Themen/Arbeitsgestaltung-im-Betrieb/Biostoffe/FAQ/FAQ-2_node.html)

### **Can coronaviruses be transmitted via meat products?**

The BfR is not yet aware of any SARS-CoV-2 infections via consumption of meat products or contact with contaminated meat products. According to what we currently know, farm animals used for meat production cannot be infected with SARS-CoV-2 and, therefore, cannot transmit the virus to humans in this way. However, contamination of meat or meat products with coronaviruses could happen during slaughter or during meat cutting and processing.

Coronaviruses can generally be transmitted from an infected person to sausage and meat if hygiene rules are ignored, for example, via contaminated hands, by direct sneezing or coughing. However, the hygiene rules and protective measures that usually must be observed in abattoirs and meat cutting facilities generally minimise the risk of contamination with pathogens, which also applies to SARS-CoV-2. Meat and meat products in retail stores are usually protected from sneezing and coughing by customers by splash guards at the counter; these minimise the risk of contamination. Coronaviruses cannot multiply in or on food; they need a living animal or human host for this purpose. A smear infection of another person only appears possible if a contaminated item of food is touched and the virus is then transmitted via the hands to the mucous membranes of the nose or eyes. According to the current state of knowledge, the oral/alimentary transmission method by consuming meat products does not play a role in the current outbreak of SARS-CoV-2.

To protect yourself from virus transmission, it is crucially important to observe the general rules of everyday hygiene such as washing your hands regularly and keeping your hands away from your face also when preparing food. Furthermore, meat and poultry in general should be heated sufficiently and evenly before consumption - also to protect against other possible pathogens - until the meat juices are clear and the meat is a whitish (poultry), greyish-pink (pork) or grey-brown colour (beef). You can find more information on hygiene when handling food at

- <https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>

**Can coronaviruses be transmitted via milk from cows fed on possibly contaminated feed?**

Transmission of SARS-Cov-2 via milk, as for other foods, is unlikely on the basis of current knowledge. The BfR is not aware of any infections with SARS-Cov-2 via this transmission method. The Friedrich Loeffler Institute and the Robert Koch Institute are not yet aware of any information from China or other countries affected by SARS-CoV-2 that indicate a particular role for feed for pets and livestock.

So far, there is no evidence that animal feed is a vehicle for coronaviruses.

**Can coronaviruses be transmitted via feed for pets or livestock?**

The BfR is not yet aware of any information from China or other countries affected by SARS-CoV-2 that indicate a particular role for feed for pets and livestock. So far, there is no evidence that animal feed is a vehicle for coronaviruses.

This applies both to the feeding of livestock and to the feeding of pets. For feeding livestock, staple feed (grass, hay, ensiled vegetable feed) and compound feed is used. Compound feed is described as mixtures of different feeds (e.g. made up of cereals, soya meal and possibly additives). This also includes supplementary feeds including mineral feeds, which are additionally fed to ensure the animals' energy and nutrient requirements.

For feeding of pets, ready-made feed is mostly used. This is understood as dry food (e.g. pellets, biscuits), wet or moist food, frozen food, grain food or even snacks (e.g. dog biscuits, dog cookies, chews).

The Friedrich-Loeffler-Institute (FLI), Federal Research Centre for Animal Health, provides information on the role of farm animals and pets in coronavirus transmission (<https://www.fli.de/de/aktuelles/tierseuchengeschehen/coronavirus/>). Studies show that neither pigs nor chickens, ducks or turkeys can be infected with SARS-CoV-2. Although cattle have a very low susceptibility to SARS-CoV-2, they cannot transmit the virus to others. There is therefore no evidence that our usual livestock/food-producing animals play a role in the spread of SARS-CoV-2. Some pets are susceptible and can generally contract infection from infected individuals. However, there is currently no evidence that pets play a role in the spread of SARS-CoV-2.

**Can e-cigarette users become infected with the coronavirus if they share the mouthpiece with other users?**

Coronaviruses can be transmitted to e-cigarette mouthpieces by an infected person when vaping and remain infectious for a while. Contact infection of another person is possible if the virus passes directly to the mucous membranes of the oral cavity. To minimise this risk, e-cigarettes should not be shared with other people. This also applies to standard cigarettes, cigars and pipes.

**Is there proof that taking high doses of vitamin D via food supplements can prevent an infection with SARS-CoV-2?**

A number of online articles have suggested that taking food supplements enriched with vitamin D (including at very high doses) can protect against infection with the coronavirus SARS-CoV-2 and/or prevent someone contracting COVID-19. These assumptions are largely based on several studies whose data showed that COVID-19 patients were often found to have insufficient serum levels of vitamin D. However, the BfR is currently unaware of any studies whose data show that taking vitamin D preparations protects against infection with this virus or against development of the disease.

There is scientific consensus about the role vitamin D plays in maintaining a normal immune system and that an adequate intake of vitamin D is necessary for our health. On the other hand, this does not imply that high-dose vitamin D preparations should be taken as a preventive measure and without medical supervision. Case studies show that there are health risks involved in taking very high-dose vitamin D preparations without first seeking medical advice.

➤ <https://www.akdae.de/Arzneimittelsicherheit/DSM/Archiv/2017-42.html>

When using vitamin D as a dietary supplement (while also considering other sources of vitamin D in the diet), an additional intake of vitamin D in quantities up to 20 micrograms ( $\mu\text{g}$ ) in the form of food supplements is very unlikely to result in impairments to health. Consuming higher doses, and very high quantities in particular, should take place only under medical supervision and when accounting for one's individual vitamin D status.

Food supplements are not intended to heal or mitigate the symptoms of a disease or illness. Food supplements are not medicines but are food products that can supplement a normal diet. Food supplements must be safe and must not cause any adverse health effects.

### **Can coronaviruses cause respiratory tract infections by transmission via drinking vessels in restaurants or in community catering facilities, such as canteens or dining halls?**

The BfR is not yet aware of this kind of infection chain. According to the state of knowledge, the oral/alimentary transmission route (via the oesophagus and stomach) does not play a role in the current outbreak of SARS-CoV-2. Transmission primarily occurs via droplets resulting from coughing and sneezing and are absorbed by other people via the mucous membranes of the respiratory tract. Furthermore, transmission via contact or smear infections cannot be ruled out in which the pathogens reach the mucous membranes of the nose or eye directly, where they can lead to infection.

A virus contamination from drinking vessels, such as drinking glasses, in restaurants would occur as a result of use by an infected person, whereby the virus is transmitted to the glass via the hands or saliva. Transmission to another person through mucous membrane contact with the glass may then occur if this vessel has not been sufficiently cleaned in the meantime. Certainly, infections with SARS-CoV-2 via this transmission method have not yet been detected.

As enveloped viruses, the genetic material of which is coated by a layer of fat (lipid layer), coronaviruses react sensitively to substances that dissolve fat, such as alcohols or surface-active agents, which are contained in soaps and dish washing detergents as grease removers. Although specific data is not yet available for SARS-CoV-2, it is likely that these substances damage the virus surface and render the virus inactive.

A current research project at the BfR using the human coronavirus 229E, which is related to SARS-CoV-2, shows that coronaviruses are relatively stable on glass and can remain infectious for days to weeks after drying on glass. The effect of light is a major influencing factor. Infectious coronaviruses could be detected for up to seven days when stored in daylight and up to 21 days in the dark. It's therefore important that drinking glasses are cleaned sufficiently. The investigations of the BfR demonstrated that most commercially available dish washing detergents are sufficient to inactivate coronaviruses in dish washing water within 15 seconds at a temperature of 23 °C. A higher temperature of 43 °C and a longer exposure time of 60 seconds was only necessary for a detergent with a lower total surfactant content. Using a DIN



6653-3 compliant manual glass washer, coronaviruses could be efficiently removed from glasses even when using cold water.

The study was published on April 6, 2022 in the scientific journal Food Microbiology: <https://doi.org/10.1016/j.fm.2022.104036>

For the related SARS-CoV, a laboratory study showed that treatment with a commercially available dish washing liquid for 5 minutes at room temperature led to complete virus inactivation (<https://academic.oup.com/cid/article/41/7/e67/310340>). Longer periods and higher temperatures could increase the efficiency of virus deactivation. Cleaning drinking vessels in dishwashers or glass washing machines at 60 degrees Celsius or a higher temperature is, therefore, particularly efficient. If this is not possible, water that is as hot as possible (> 45 °C, but no higher than 50 °C, in order to protect the hands), along with detergent, should be used in manual cleaning processes. When using colder water, particular care must be taken to ensure that there is a sufficient amount of detergent, that glasses are left in the sink for longer time, and that glasses are carefully cleaned mechanically, then dried.

Further information can be found in the BfR opinion 'Hygienic effectiveness of rinsing devices for cleaning drinking glasses in catering':

- [https://www.bfr.bund.de/cm/343/hygienische\\_wirksamkeit\\_von\\_spielgeraeten\\_zum\\_reinigen\\_von\\_trinkglaesern\\_in\\_der\\_gastronomie.pdf](https://www.bfr.bund.de/cm/343/hygienische_wirksamkeit_von_spielgeraeten_zum_reinigen_von_trinkglaesern_in_der_gastronomie.pdf)

### **Are special precautionary measures necessary with regard to dishes or cutlery in care facilities for the elderly?**

All the usual measures and rules of conduct for protecting against noroviruses or influenza viruses in care facilities for the elderly also help against transmission of SARS-CoV-2.

### **Can you get infected with SARS-CoV-2 via contaminated frozen food?**

The previously known coronaviruses SARS-CoV and MERS-CoV are resistant to cold and can remain infectious at minus 20 °C for up to 2 years in a frozen state. A study showed that infectious SARS-CoV-2 could still be detected on fish, pork and beef 20 days after storage at -20 °C (<https://link.springer.com/article/10.1007/s12250-021-00367-x>). However, the BfR is not aware of any scientifically proven cases of SARS-CoV-2 infection in humans via frozen food.

The report of the "WHO-convened Global Study of the Origins of SARS-CoV-2" published on March 30, 2021 also states that there is currently no convincing evidence of transmission of SARS-CoV-2 via food, including chilled and frozen food (<https://www.who.int/health-topics/coronavirus/origins-of-the-virus>). General rules of hygiene when preparing food should be observed.

- [https://www.bfr.bund.de/cm/350/verbrauchertipps\\_schutz\\_vor\\_lebensmittelinfektionen\\_im\\_privathaushalt.pdf](https://www.bfr.bund.de/cm/350/verbrauchertipps_schutz_vor_lebensmittelinfektionen_im_privathaushalt.pdf)

### **In the current situation, does it make sense to use disinfectants at home as well?**

Even in the current situation, the BfR sees no need for healthy people to disinfect their own homes. Normal hygiene measures, such as correct and frequent hand washing with soap and regularly cleaning surfaces and door handles with standard household surfactant-based washing and cleaning agents sufficiently protect against a smear infection with SARS-CoV-2.

In exceptional cases, the targeted use of disinfectants in their own homes may be appropriate if recommended by a doctor. Recommendations on using biocidal substances in your own

home can be found in these FAQs: ([https://www.bfr.bund.de/de/fragen\\_und\\_antworten\\_zu\\_nutzen\\_und\\_risiken\\_von\\_desinfektionsmitteln\\_im\\_privathaushalt-190275.html](https://www.bfr.bund.de/de/fragen_und_antworten_zu_nutzen_und_risiken_von_desinfektionsmitteln_im_privathaushalt-190275.html)).

The disinfection measures that must be taken if an infected person lives in a quarantined home should be discussed with the responsible health department or doctor.

If there are no opportunities for hand washing outside of the home, care should be taken that hands are kept away from the face, not to shake hands with other people and to wash the hands thoroughly as soon as there is an opportunity to do so. If this is not possible, wipes or an alcoholic hand disinfectant can be used while out and about. Choosing the right disinfectant is essential as is following the manufacturer's product instructions for correct use, notably the correct dosage and application time. Disinfectants must be effective against viruses (the spectrum is referred to as: "virucidal", "limited virucidal PLUS" or "limited virucidal").

**Further information on the topic of viruses is available from the BfR website**

[https://www.bfr.bund.de/en/a-z\\_index/viruses-130212.html](https://www.bfr.bund.de/en/a-z_index/viruses-130212.html)

Additional information on disinfection and hygiene in private households can be found on the website of the Federal Centre for Health Education (BZgA):

<https://www.bzga.de/>



BfR "Opinions app"

**About the BfR**

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. The BfR advises the Federal Government and the States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

*This text version is a translation of the original German text which is the only legally binding version.*