

This Tech Talk is based on current information available as of March 21, 2020 and is specific to the regulatory framework and guidance for disinfectants for non-critical, hard, non-porous surfaces (as defined by U.S. EPA) in the United States, which may vary from requirements in other countries.

IMPORTANT NOTICES: Tech Talk is provided by the Commercial Solutions Division (“CSD”) of 3M Company (“3M”) free of charge and as a courtesy for potential purchasers of 3M™ Disinfectant Cleaning products. While we believe the statements contained in this document are accurate, the Novel Coronavirus SARS-CoV-2 - the Cause of Coronavirus Disease 2019 (COVID-19) - is a fast-moving, constantly changing situation and the accuracy or completeness of statements contained in this document are not guaranteed. Potential purchasers should refer to 3M published product specifications for more detailed information regarding 3M products. This information is intended for use by persons with the knowledge and technical skills to analyze, handle and use such information. You must evaluate and determine whether the product is suitable for your intended application. **For any country, including the U.S., local regulations should always be consulted before selecting and utilizing a disinfectant cleaner.**

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General questions about Coronavirus Disease 2019 (COVID-19)

What is the Coronavirus Disease 2019 (COVID-19)?

COVID-19 stands for Corona (CO) Virus (VI) Disease (D) followed by the year it was discovered (2019). The Novel Coronavirus SARS-CoV-2, the cause of Coronavirus Disease 2019 (COVID-19) or Novel Coronavirus (2019 nCoV), is an enveloped virus that originated in the Wuhan region of China. The Coronavirus family of viruses have been linked to illnesses in both animals and humans. Coronavirus Disease 2019 (COVID-19) is in the same family as the viruses that cause Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Initially it was suspected that the Coronavirus Disease 2019 (COVID-19) was linked to a human-to-animal exposure, but additional cases have been identified as transmitted from human-to-human contact in people who have not been exposed directly to animals.

Additional Information is available at <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>

What are enveloped and non-enveloped viruses?

Viruses can be classified a number of ways and one is the presence or absence of an outer envelope. Enveloped viruses have an interior that is surrounded by a lipid bilayer studded with an outer layer of virus enveloped glycoproteins. In general, enveloped viruses are more susceptible to disinfectants than non-enveloped viruses. Examples of enveloped viruses include influenza viruses, Hepatitis B Virus (HBV), and Human Immunodeficiency Virus (HIV). Examples of non-enveloped viruses include Adenovirus, Parvovirus, Rotavirus, Rhinovirus, Poliovirus, Norovirus and Coxsackie Virus. SARS-CoV-2 or COVID-19 is an enveloped virus.

How does it spread?

Coronaviruses are common in many species of animals such as camels, cattle, cats, and bats. The SARS-CoV-2 or COVID-19 virus is a betacoronavirus, similar to MERS-CoV and SARS-CoV. It is rare, but animal coronaviruses can infect people and then spread from person-to-person such as MERS and SARS. When person-to-person spreads take place (instances related to MERS and SARS) it is understood that this transmission took place via exposure to respiratory mucous generated from a cough, sneeze, or direct transmission of saliva. This is similar to how influenza and other respiratory illnesses spread. It is important to note that the likelihood of viruses spreading across a population can vary based on many factors. This can include the type of virus and/or the size/health of the population. The risk of outbreaks and spread depends on the characteristics of the pathogen, including its potential to spread, illness effects on individuals and the population, and measures that can be taken to help control the impact of the pathogen, from disinfectants to vaccines. Unfortunately, details regarding the Coronavirus Disease 2019 (COVID-19) are still developing and ongoing research from key entities, such as the Center for Disease Control (CDC) and the US Environmental Protection Agency (US EPA) is underway to further understand how the virus spreads. New information will continually be made available to the general public. It is recommended to routinely check the CDC Coronavirus Disease 2019 (COVID-19) webpage for up-to-date information.

<https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>

Is Coronavirus Disease 2019 (COVID-19) the same as Human Coronavirus?

No. These two pathogens come from the same family of viruses, but the two strains are different species. This is like how both chimpanzees and gorillas are different animals, but both part of the *Hominidae* or the great ape family. However, the US EPA has determined that disinfectants with a preexisting efficacy claim for Human Coronavirus meet the criteria as defined by the US EPA's Emerging Pathogen Policy, thus are included on US EPA's "List N" for effectiveness against COVID-19. Please reference the US EPA's "List N" for more detail. <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

What are common symptoms?

Current symptoms associated with Coronavirus Disease 2019 (COVID-19) are similar to those caused by influenza and other respiratory illnesses. These symptoms include coughing, runny nose, sore throat, wheezing, sneezing, fever, and trouble breathing. In serious cases, the Coronavirus Disease 2019 (COVID-19) can cause severe acute respiratory syndrome, pneumonia, bronchitis, and even death. <https://www.cdc.gov/coronavirus/2019-ncov/index.html>

What can we do to help mitigate the spread of this virus?

Currently, the Coronavirus Disease 2019 (COVID-19) is rapidly changing and new information is released often. Please refer to the CDC website for the most up to date information. The CDC website lists examples of preventative measures that can be taken, which include but are not limited to the following:

- Avoid touching eyes, nose, or mouth
- Stay home when you are sick
- Avoid close contact with people who are sick
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after; and after blowing your nose, coughing, or sneezing. (If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.)

People feeling ill or suspected to be infected with the Coronavirus Disease 2019 (COVID-19) should contact their local healthcare provider as soon as possible.

<https://www.cdc.gov/coronavirus/2019-ncov/about/prevention-treatment.html>

Questions about surface disinfection

What non-critical hard non-porous surface disinfectant guidance is there?

Due to the Coronavirus Disease 2019 (COVID-19) being a newly emerging pathogen there is no US EPA registered disinfectant currently available on the market, as of March 21, 2020, with the Coronavirus Disease 2019 (COVID-19) efficacy claim specifically listed on their container label. When emerging pathogens come to light, disinfectant manufacturers rely on the regulatory bodies such as the CDC and US EPA to provide guidance on specific disinfectants to use in times of urgent need. In 2016, the US EPA published a policy in conjunction with the CDC, that helped to clarify when a manufacturer or user of a disinfectant can make claims regarding emerging viral pathogens that are not specifically listed on product labels that are known to be effective against the emerging pathogen type. This is known as the “Emerging Pathogens Policy”. On January 22, 2020, Anita Pease, the Director of the US EPA Antimicrobial Division announced that the Coronavirus Disease 2019 (COVID-19) pandemic has triggered the EPA Emerging Pathogen Policy. Due to the general public’s need for guidance on disinfectants to use in cases of outbreaks, this policy-initiated criteria for disinfectants allows for professional judgements on effectiveness of disinfectants with current registrations with similar, representative microorganism families based on their cell structures (ex. category 2a large enveloped viruses, category 2b large unenveloped viruses, and category 2c small unenveloped viruses) and the microorganisms vulnerability to types of disinfectant chemistries.

<https://www.epa.gov/pesticide-registration/emerging-viral-pathogen-guidance-antimicrobial-pesticides>

https://www.epa.gov/sites/production/files/2016-09/documents/emerging_viral_pathogen_program_guidance_final_8_19_16_001_0.pdf

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Under this policy, a more timely response from the US EPA and CDC can be generated and existing US EPA registered disinfectants can immediately be used to help prevent the spread of emerging pathogens. In a conservative approach, until the transmission of this virus is better understood, disinfectants that meet the US EPA’s Emerging Pathogen Policy for category 2c small unenveloped viruses are identified for use against the Coronavirus Disease 2019 (COVID-19). In addition, registered disinfectants with human coronavirus efficacy claims are being allowed on US EPA’s List N.

In addition to the US EPA and CDC guidance, the World Health Organization (WHO) has released guidance in respect to principles of infection prevention and control strategies associated with a Coronavirus Disease 2019 (COVID-19). As standard precaution for individuals or patients in suspected cases, the WHO advises wearing personal protective equipment (PPE) during the application of commonly used hospital-level disinfectants to help prevent potential transmission of the Coronavirus. The 3M Personal Safety Division has also released a Tech Talk in response to the Coronavirus Disease 2019 (COVID-19). See the links on the following page.

[https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125)

<https://www.who.int/health-topics/coronavirus>

<https://multimedia.3m.com/mws/media/1791123O/2019-novel-coronavirus-outbreak.pdf>

What are non-critical hard non-porous surfaces?

Examples of non-critical hard non-porous surfaces are tabletops, doorknobs, floors that consist of a substrate that is not porous in nature such as stainless steel, sealed concrete, vinyl, and hard plastics. Non-critical entails surfaces in a healthcare setting that are high touch, but would not include articles that would enter the human body.

What is US EPA's "List N" and how do I read it?

The US EPA has published a list of US EPA registered disinfectant products that meet the US EPA criteria for use against Novel Coronavirus SARS-CoV-2, the cause of COVID-19. This list is comprised of disinfectants that either meet the US EPA's Emerging Pathogen Policy specific for the COVID-19 and/or contains registrations that meet the criteria via containing the supporting viral pathogens, such as Human Coronavirus.

The cover page (first page) of List N states:

"All EPA-registered pesticides must have an EPA Registration Number. Alternative brand names have the same EPA Reg. No. as the primary product. The EPA Reg. No. of a primary product consists of two set of numbers separated by a hyphen, for example EPA Reg. No. 12345-12. The first set of numbers refers to the company identification number, and the second set of numbers following the hyphen represents the product number.

In addition to primary products, distributors may also sell products with identical formulations and identical efficacy as the primary products. Although distributor products frequently use different brand names, you can identify them by their three-part EPA Reg. No. The first two parts of the EPA Reg. No. match the primary product, plus a third set of numbers that represents the Distributor ID number. For example, EPA Reg. No. 12345-12-2567 is a distributor product with an identical formulation and efficacy to the primary product with the EPA Reg. No. 1234512."

Per the paragraph above, 3M (in this case) is the distributor as the sub-registrant. An individual pesticide product may be marketed and sold under a variety of names. You may identify 3M disinfectant from this list by referencing the US EPA registration numbers. The American Chemistry Council (ACC) published a list of disinfectant with branded or distributor names as well. List N and the ACC list may not be all encompassing and will be continually updated as more disinfectant are identified, and primaries request to be added to the list.

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

<https://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/CBC-Publishes-List-of-Products-That-Help-Stop-Spread-of-Novel-Coronavirus.html>

Why is it named list "N"?

The US EPA has created many lists to help with quick guidance for the community of disinfectant registrations that have been determined as viable against specific pathogens. List N is just the next prefix for the list of disinfectant registrations identified for SARS-CoV-2, cause of COVID-19.

How does the U.S. EPA determine potential efficacy against SARS-CoV-2, cause of COVID-19?

SARS-CoV-2, cause of COVID-19 is a new to the world virus and efficacy claim testing has not yet been validated or substantiated, meaning specific disinfectant registrations have not yet had time to be officially tested against the virus. The U.S. EPA expects disinfectants that have demonstrated efficacy against a harder to kill virus or meet the criteria defined for the specific virus per the U.S. EPA's emerging viral pathogens claim, or demonstrated efficacy against another similar to coronavirus such as human coronavirus, to be effective against SARS-CoV-2, cause of COVID-19.

<https://www.epa.gov/pesticide-registration/frequently-asked-questions-about-list-n-disinfectants-use-against-sars-cov-2>

How do you apply and use disinfectants in areas potentially exposed to COVID-19?

It is recommended to use applicable disinfectants in accordance with their current label directions for the supporting viral pathogen. Per the US EPA's List N guidance:

"EPA strongly recommends following the product label use directions for enveloped viruses, as indicated by the approved emerging viral pathogen claim on the master label. If the directions for use for viruses/virucidal activity list different contact times or dilutions, use the longest contact time or most concentrated solution."

Utilize the disinfectant per the respective disinfectant product label instructions per the supporting viral claim(s) that were identified by meeting the criteria defined in the U.S. EPA's Emerging Pathogen Policy. There may be questions as they relate to utilizing disinfectants in specific spray application devices such as electrostatic sprayers. You may utilize 3M disinfectants in spray devices as long as the applicator or device is set to a coarse spray setting. It is advised to consult with device manufacturers to ensure that device settings are set to a coarse spray.

Why are hand sanitizers not listed on the US EPA's List N?

List N only includes US EPA registered non-critical hard non-porous surface disinfectants. Hand Sanitizers are regulated by the Food and Drug Administration (FDA), thus not in scope of the US EPA's List N. The below link is to 3M™ Avagard™ hand antiseptic webpage, where more resources on this product are available.

https://www.3m.com/3M/en_US/company-us/all-3m-products/~/3M-Avagard-D-Instant-Hand-Antiseptic-with-Moisturizers-61-w-w-ethyl-alcohol-/?N=5002385+3293316360&preselect=3293786499&rt=rud

Will disinfecting our floors help?

Disinfecting high touch surfaces and floors are among several ways to help mitigate the spread of viruses. Although disinfecting the floor in a healthcare facility may not be a requirement many studies have discovered that pathogens inoculated on a floor do migrate to other locations in a room, which may include high touch surfaces. Wheelchairs, handbags, backpacks, and mobile phone cords are common items that touch the floor and eventually lead to transition to high touch surfaces.

<https://apic.org/news/hospital-floors-may-pose-a-larger-health-risk-than-previously-thought/>

https://www.jstor.org/stable/10.1086/670217#metadata_info_tab_contents

Why are there different supporting viral pathogens than indicated on US EPA's List N?

You may reference on US EPA's List N for supporting viral claim for quick reference, but there may be different supporting viral pathogens listed that meet the US EPA Emerging Pathogen policy criteria specific for COVID-19 because they are a harder to kill pathogen than COVID-19.

What does log reduction mean?

Log reduction or 99.9% or 99.9999% effectiveness are terms used to correlate to efficacy provided by a specific disinfectant or sanitizer. This means the percent of pathogens able to be killed from a hard non-porous surface as long as all label directions are followed properly.

What is the difference between a “sanitizer” and a “disinfectant”?

- The US EPA Performance Standard for sanitizers requires a reduction of at least 99.9% (3-log reduction) in the number of test microorganisms. The “Sanitizer” claims are based on laboratory testing of two bacterial pathogens. These are *Staphylococcus aureus* and either *Klebsiella pneumoniae* or *Enterobacter aerogenes*.
- The US EPA Performance Standard for disinfection requires a significantly higher level of reduction, 99.9999% reduction/kill (6-log reduction). US EPA registered disinfectants are identified as a higher level of pathogen reduction and their efficacy can vary based on tested pathogens (claims can range from HIV-1 to Clostridium difficile spores).
- Please reference the 3M “Hard Surface Disinfection vs Soft Surface Sanitization Tech Talk” for more detail.

Which 3M disinfectants are effective on porous or “soft surfaces”?

The 3M™ Quat Disinfectant Cleaner Concentrate, 5L, 5H, 5A or the 3M™ Disinfectant RCT Cleaner Concentrate, 40L, 40A both have soft surface sanitization claims, which would allow for a sanitization level of efficacy on soft surface such as fabrics or upholstery. Please reference the 3M “Hard Surface Disinfection vs Soft Surface Sanitization Tech Talk” for more detail.

What is the shelf life of 3M™ Disinfectant Cleaning Products?

All 3M disinfectants have a concentrate and ready-to-use shelf life. Concentrate shelf lives are the products longevity when kept contained within its concentrate packaging. Ready-to-use or diluted solution shelf life refers to how long the solution is viable prior to it needing to be properly disposed of and replaced once the disinfectant has been diluted. Closed container diluted solution shelf lives may be longer as their risk for contamination is greatly reduced as they are not directly exposed to the environment. Open container diluted solution shelf life is 24 hours unless the solution is visible dirty or known to be contaminated, then the solution should be properly disposed of and replaced immediately. Please reference the 3M “Shelf Life” Document for more detail of 3M disinfectant shelf lives.

What are ways to mitigate disinfectant residue?

If you experience residue after disinfecting surfaces there could be an overuse or oversaturation of disinfectant on such surface. Residue can be mitigated by application techniques such as properly administering the right volume of disinfectant to surfaces or wiping off disinfectant after the respective contact time has been reached. It is up to each facility to develop proper protocols for cleaning and disinfecting within their facility. Please reference the 3M “Disinfectant Residue Tech Talk” for more detail.

What is “contact time” and does it matter?

Contact time refers to how long a surface must remain saturated or wet with the respective disinfectant. Contact Time and Dwell Time are synonymous. Contact time is critical for ensuring efficacy claims are met per the US EPA. Each disinfectant label contains relevant information as it pertains to the specific disinfectant registration. Efficacy claims have been tested, validated, and approved for the respective contact times per US EPA guidance. It is a violation of Federal Law to use the disinfectant in a manner that is inconsistent with the product labeling.

Are 3M Commercial Solutions Division disinfectants for use by consumers?

No. 3M Commercial Solutions Division disinfectants are intended only for industrial or commercial use.

Which 3M Commercial Solutions Division disinfectant cleaners currently meet the criteria defined in the U.S. EPA's Emerging Pathogen Policy specific to COVID-19?

The below chart shows a current list of 3M disinfectant cleaners that were identified as meeting the criteria defined in the U.S. EPA's Emerging Pathogen Policy specific to COVID-19. The 3M products below, when used in accordance with the directions for use against the respective supporting viral claims on non-critical, hard, non-porous surfaces, meet the criteria for EPA's Emerging Pathogen Policy. Refer to the CDC website <https://www.cdc.gov/coronavirus/2019-ncov/index.html> for additional information.

The 3M disinfectant cleaners that meet the criteria for the U.S. EPA's Emerging Pathogen Policy and/or are listed on US EPA's "List N" for use on non-critical, hard, non-porous surfaces are as follows:

Product Name	US EPA Registration Number	Supporting Viral Claim	Contact Time
3M™ Quat Disinfectant Cleaner Concentrate (5L, 5H, 5A)	6836-78-10350	Norovirus or Rotavirus	10 Minutes
3M™ Non-Acid Disinfectant Bathroom Cleaner Concentrate (15L, 15A)*	1839-166-10350	Human Coronavirus or Rotavirus	10 Minutes
3M™ Neutral Quat Disinfectant Cleaner Concentrate (23L, 23H, 23A)	47371-129-10350	Adenovirus Type 7 or Rotavirus	10 Minutes
3M™ HB Quat Disinfectant Cleaner Concentrate (25L, 25H, 25A)*	61178-5-10350	Human Coronavirus or Rotavirus or Norovirus	10 Minutes
3M™ Disinfectant Cleaner RCT Concentrate (40L, 40A)**	6836-349-10350	Rotavirus	3 Minutes
3M™ Disinfectant Cleaner RCT Concentrate	6836-349-10350	Enterovirus D68 or Norovirus or Rotavirus (1:128 dilution)	5 Minutes
3M™ MBS Disinfectant Cleaner Fresh Scent Concentrate (41L, 41H, 41A)	6836-361-10350	Norovirus or Rotavirus	5 Minutes
3M™ MBS Disinfectant Cleaner Concentrate (42L, 42H, 42A)	6836-361-10350	Norovirus or Rotavirus	5 Minutes
3M™ C. diff Solution Tablets	71847-6-10350	Hepatitis A Virus or Coxsackievirus B3 or Norovirus	1 Minute (2153 ppm)
3M™ TB Quat Disinfectant Cleaner Ready-To-Use	1839-83-10350	Canine Parvovirus, Human Rotavirus, Hepatitis A Virus, Rhinovirus Type 39, or Poliovirus Type 1	10 Minutes

*Does not contain an Emerging Pathogen Policy Claim on EPA master label, but does demonstrate efficacy for Human Coronavirus, thus ok for inclusion on List N.

** Supporting viral claim different than that listed on List N, but viral claim is identified on List N (as well as included on the ACC list) per the US EPA Emerging Pathogen Policy as a supporting viral claim.