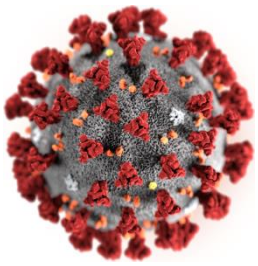
LANXESS

Rely+On™ Virkon™

Q. How long will the Corona Virus survive on surfaces ?

20.03.2020

Answer : The COVID-19 virus remains under intense study and observation with updates on its features being dynamic



The Structure of Coronavirus (Ref. CDC)

Meanwhile, to assist with the 'likely' situation of the virus survival a team from the University Medicine Greifswald, Germany 6th February 2020, issued this guide which is collated from various studies and data sets as noted by the associated references.

The table and references are based on 'other' Corona Virues >

Persistence of coronaviruses on different types of inanimate surfaces

Type of surface	Virus	Strain / isolate	Inoculum (viral titer)	Temperature	Persistence	Reference
Steel	MERS-CoV	Isolate HCoV-EMC/2012	10^5	20°C	48 h	[21]
				30°C	8–24 h	
	TGEV	Unknown	10^6	4°C	≥ 28 d	[22]
				20°C	3–28 d	
				40°C	4–96 h	
	MHV	Unknown	10^6	4°C	≥ 28 d	[22]
				20°C	4–28 d	
				40°C	4–96 h	
	HCoV	Strain 229E	10^3	21°C	5 d	[23]
Aluminium	HCoV	Strains 229E and OC43	5×10^3	21°C	2–8 h	[24]
Metal	SARS-CoV	Strain P9	10^5	RT	5 d	[25]
Wood	SARS-CoV	Strain P9	10^5	RT	4 d	[25]
Paper	SARS-CoV	Strain P9	10^5	RT	4–5 d	[25]
	SARS-CoV	Strain GVU6109	10^6	RT	24 h	[26]
			10^5		3 h	
			10^4		< 5 min	
Glass	SARS-CoV	Strain P9	10^5	RT	4 d	[25]
	HCoV	Strain 229E	10^3	21°C	5 d	[23]
Plastic	SARS-CoV	Strain HKU39849	10^5	22°-25°C	≤ 5 d	[27]
	MERS-CoV	Isolate HCoV-EMC/2012	10^5	20°C	48 h	[21]
				30°C	8–24 h	
	SARS-CoV	Strain P9	10^5	RT	4 d	[25]
	SARS-CoV	Strain FFM1	10^7	RT	6–9 d	[28]
	HCoV	Strain 229E	10^7	RT	2–6 d	[28]
PVC	HCoV	Strain 229E	10^3	21°C	5 d	[23]
Silicon rubber	HCoV	Strain 229E	10^3	21°C	5 d	[23]
Surgical glove (latex)	HCoV	Strains 229E and OC43	5×10^3	21°C	≤ 8 h	[24]
Disposable gown	SARS-CoV	Strain GVU6109	10^6	RT	2 d	[26]
			10^5		24 h	
			10^4		1 h	
Ceramic	HCoV	Strain 229E	10^3	21°C	5 d	[23]
Teflon	HCoV	Strain 229E	10^3	21°C	5 d	[23]

MERS = Middle East Respiratory Syndrome; HCoV = human coronavirus; TGEV = transmissible gastroenteritis virus; MHV = mouse hepatitis virus; SARS = Severe Acute Respiratory Syndrome; RT = room temperature.

The associated references.

[21] van Doremalen N, Bushmaker T, Munster VJ. Stability of Middle East respiratory syndrome coronavirus (MERS-CoV) under different environmental conditions. Euro Surveill 2013;18.

[22] Casanova LM, Jeon S, Rutala WA, Weber DJ, Sobsey MD. Effects of air temperature and relative humidity on coronavirus survival on surfaces. Appl Environ Microbiol 2010;76:2712–7.

[23] Warnes SL, Little ZR, Keevil CW. Human Coronavirus 229E Remains Infectious on Common Touch Surface Materials. mBio 2015;6:e01697–15.

[24] Sizun J, Yu MW, Talbot PJ. Survival of human coronaviruses 229E and OC43 in suspension and after drying on surfaces: a possible source of hospital-acquired infections. J Hosp Infect 2000;46:55–60.

[25] Duan SM, Zhao XS, Wen RF, Huang JJ, Pi GH, Zhang SX, et al. Stability of SARS coronavirus in human specimens and environment and its sensitivity to heating and UV irradiation. Biomed Environ Sci 2003;16:246–55.

[26] Lai MY, Cheng PK, Lim WW. Survival of severe acute respiratory syndrome coronavirus. Clin Infect Dis 2005;41:e67–71.

[27] Chan KH, Peiris JS, Lam SY, Poon LL, Yuen KY, Seto WH. The Effects of Temperature and Relative Humidity on the Viability of the SARS Coronavirus. Adv Virol 2011;734690.

[28] Rabenau HF, Cinatl J, Morgenstern B, Bauer G, Preiser W, Doerr HW. Stability and inactivation of SARS coronavirus. Med Microbiol Immunol 2005;194:1–6.

Q2: How Can Rely+On™ Virkon™ Assist?

Rely+On™ Virkon™ is a unique, powerful, broad-spectrum disinfectant with extensive efficacy studies, safety testing and enviromental profiles. It has been used globally for routine disinfection and/or decontamination of hardsurfaces: floors, walls, doors and door handles, walkway, furniture, equipment, and bathroom in various areas such as medical facilities, pathology and biosafety containment laboratories, treatment salons and residential homes. Body fluid spillage can also be decontaminated with Rely+On™ Virkon™.

For Wuhan CoV inactivation, we suggest a 1% (1:100) Rely+On™ Virkon™ solution with a 10-minute contact time.

Q3: How Can We Apply Rely+On™ Virkon™?

For hard surface disinfection, Rely+On™ Virkon™solution can be applied at a rate of 200 ml/m^2 using either a trigger spray bottle, a suitable knapsack type sprayer, cloth, sponge or floor mop.

For equipment disinfection, the equipment can either be submerged and washed in disinfectant solution or sprayed and then wiped clean with a cloth or sponge.

Q4: Is There Anything to Be Concerned With the Use of Rely+On™ Virkon™?

Yes - it it strongly advised that Rely+On™ Virkon™ is not intended for use for the disinfection of medical devices and users should always check for compatibility with any sensitive materials before use. Do not use on any soft metals such as brass or copper and it is not recommended for use on soft furnishings, textiles or carpets. You may also rinse disinfected equipment with clean water after 10 minutes when materials compatibility is of concern.

Q5: How to Dispose 1% Rely+On™ Virkon™ Solution?

Rely+On™ Virkon™ is intened to be used at 1% or less in most situations, at which dilution rate the product is considered to be of low hazard and safe. It is not classified as hazardous according to the Globally Harmonized System for hazard classification (GHS).

Rely+On™ Virkon™ solution is generally considered to be of low risk to municipal sewage treatment facilities. The solution may generally be disposed via drains leading to a foul sewer but not via drains leading to surface waters. Disposal to foul sewer is typically subject to discharge consent with the appropriate local authority and normally requires prior approval and control of the volumes discharged. Please always seek guidance from your local authority prior to discharge. We have data which can be provided in support of any discharge consent procedures.

For any safety concerns, we have provided Rely+On™ Virkon™ Safety of 1% Solutions data sheet you may request through our professional partners where the product is registered.

Q6 : Can we apply through Cold or Thermal Fogging equipment.

Rely+On™ Virkon™ has not, hitherto been applied with a thermal fogging equipment and nor do we have associated data of an appropriate dilution to deliver the inactivation efficacy. A thermal fog application is typically and 'adjunct' application following a deep clean and initial disinfection that has been applied and the surface allowed to dry. We do not consider that is an option under the current circumstances and it is not recommended.

A Cold fog application is also a rare practice, not least with the multiple materials found within the public health environments of which one has to take care.

With this document is a material compatibility study.

Our Chief Chemist, Mark Squire, also makes the following notes *> With the current efficacy guided at a 1%, 1 to 100 dilution we advise the following.*

- *take great care with disinfecting in the vicinity of porous materials like leather, carpets & fabrics (notably do not use Virkon solutions on any blue coloured fabric / carpet items). Direct use on carpets is not recommended at the 1:100 dilution*
- *if used on varnished wood or typical household painted surfaces, then occasional , repeated use of Virkon should be ok - but we cannot guarantee no cosmetic effects after many repeated exposures (most notably so if used at 1:100)*
- *the users take great care on any materials which are not designed for treatment by water based cleaners/ disinfectants*
- *electrical items do not like water based cleaners/ disinfectants in general, so great care is needed when using the product near common items such as switches & light fittings (an issue of concern for use of any liquids whether Virkon is present , or not)*
- *occasional use on resistant hard surface materials - such as stainless steel, & most plastics, vinyl flooring are considered very low risk*
- *do not use the product at 1:100 directly on any exposed public domain soft metals like copper/brass based items*
- *do not use the product at 1:100 on marble type surfaces, this surface is not compatible – if applied, rinse after 10 minutes with potable water*

Operators would be advised to 'cover' any 'sensitive' equipment and wipe those with a disinfectant solution separately. In large areas and spaces a post disinfection rinse with potable water is another option. It is often a situation of 'balance' of the need to disinfect with a product that is safe for the operators and general environment versus the total coverage of any area and materials.

Please refer to the Rely™ Virkon™ product leaflet.

For copies of the Rely+On™ Virkon™ product leaflet please contact

Antec International Limited
Windham Road, Chilton Industrial Estate
Sudbury, Suffolk CO10 2XD,
United Kingdom

Tel: +44(0)1787 377305
relyondisinfection@lanxess.com
www.relyondisinfection.com

For hard surface disinfection, Rely+On™ Virkon™solution could be applied with a dilution of 1 to 100/ 1% at a rate of 200 ml/m^2 using equipment dispensing a cold fog/mist. The volume should be adjusted lower, if the surfaces become too wet. The contact time (wetted area) does need to be at least 10 minutes as per the efficacy data.

These types of application have been engaged in 2019 when there was a Norovirus outbreak at the Winter Olympics. A Vector fog (all plastic components) equipment was used.

Please follow all safety guides from the SDS, for the preparation of the Rely+On™ Virkon™ solution and the Safety guide for the 1% Diluted Rely+On™ Virkon™ solution.

Arunee Thanasarasakulpong, D.V.M., M.S.
LANXESS Thai Co., Ltd.
BU: Material Protection Products
Technical Marketing Executive,
APAC (excluding China)

Anthony Pearson
Head Technical Marketing for Biosecurity and Hygiene
BU: Material Protection Products

LANXESS
Energizing Chemistry

Antec International Ltd.
Windham Rd, Chilton Ind. Est.
Sudbury, Suffolk, CO10 2XD
United Kingdom.

www.virkon.com
biosecurity@lanxess.com