

Vivid™ SENSE

Disinfectant Fogging Solution

TECHNICAL BULLETIN: Coronavirus (COVID-19) and Vivid™ SENSE

To Whom it may concern.

Please be advised that whilst Vivid™ SENSE is a chlorine-free, alcohol-free disinfectant technology it is proven to be highly effective against both enveloped and non-enveloped viruses, as well as bacteria, bacterial spores and fungi.

In formal testing at accredited laboratories to the internationally recognised EN14476 Virucidal Efficacy test protocol, Vivid™ SENSE is proven to kill 99.99% of enveloped viruses (such as COVID-19) and non-enveloped viruses within minutes of contact.

Vivid™ SENSE has already been proven to be effective against several different types of coronavirus including;

- SARS-associated coronavirus
- Human coronavirus (VR-740)
- Canine coronavirus (VR-809)

Since Coronavirus (COVID-19) is a new virus there is NO commercially available virucidal efficacy test that can be used for any disinfectant against this specific virus at this point in time (March 2020).

As a specific COVID-19 efficacy test does not currently exist, no disinfectant on the market can claim to be effective against the specific COVID-19 virus causing the current pandemic.

However, since Coronavirus (COVID-19) is classified as an 'enveloped virus', its physical structure is similar to other 'enveloped viruses' which in this case means that the COVID-19 capsid containing the nucleic acid essential to viral replication is surrounded by a lipid membrane, similar to other enveloped viruses such as influenza and the three coronaviruses listed above.

The lipid based membrane 'envelope' of all enveloped viruses (including COVID-19) contains lipids and proteins and it is these proteins which bind to receptors on host cells and enable the virus to 'infect' the host cells (i.e. result in a human infection).

A key benefit of Vivid™ SENSE is that in addition to the physical disruption of the lipid envelope surrounding the COVID-19 virus, Vivid™ SENSE will also denature the binding proteins within the envelope and the capsid itself. See Figure 1 below for further information.

Essentially by: (1) disrupting the lipid envelope, (2) changing the shape and structure of the virus binding proteins, and (3) denaturing the proteins of the virus capsid, Vivid™ SENSE effectively dismantles the physical structure of enveloped viruses and renders them ineffective and therefore unable to cause infection.

Therefore by using Vivid™ SENSE to clean and disinfect environmental surfaces, these multiple points of attack offered by Vivid™ SENSE gives a comprehensive 'belt and braces' approach to reducing the risk posed by COVID-19 on any environmental surface.

In addition, any other problematic bacteria, bacterial spores, viruses or fungi on the surfaces cleaned with Vivid™ SENSE will also be controlled, thereby resulting in a cleaner, safer environment for all.

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What is Vivid™ SENSE?

Vivid™ SENSE is a high level disinfectant technology platform offering safe, effective, user friendly single step cleaning and disinfection across a wide range of industries from healthcare to educational establishments to food processing to veterinary science.

The Vivid™ SENSE technology platform is based around the quaternary ammonium compounds didecylmethyl ammonium chloride (DDAC) and benzalkonium chloride (BAC) with an adjuvant effect to supercharge its antimicrobial efficacy.

A joint paper published by the UK Health Protection Agency Microbiological Services Division, Porton Down, Salisbury and the UK Health Protection Agency Centre for Infections, London, listed a disinfectant using didecylmethyl ammonium as one of the most potent, effective high level disinfectants available.

What has Vivid™ SENSE been designed for?

Vivid™ SENSE has been developed as a combined high level disinfectant / cleaner for all hard and soft surfaces, environments, equipment and air. It is designed for use in situations where there is a clear need to create and maintain the cleanest possible environment whilst simultaneously reducing the bio-burden (i.e. number of microbes present) in order to interrupt the key transmission pathways (surfaces and air) and reduce the risk of infection, cross infection, contamination etc.

As a combined disinfectant cleaner Vivid™ SENSE is intended for single stage cleaning and disinfection protocols. If local policy dictates a two-stage clean, then disinfect, process then Vivid™ SENSE is suitable for either stage of this process.

The prolonged effect of Vivid™ SENSE.

Vivid™ SENSE delivers a prolonged antimicrobial effect on all surfaces after application. What this means for the users is that it continues to work and kills or attenuates microbes for hours or even days after it has been used on a surface.

Therefore any virus particles falling onto, or being deposited onto a surface that has been cleaned and disinfected with Vivid™ SENSE will come under attack from the disinfectant and therefore be less likely to affect the next person to touch them.

How does Vivid™ SENSE affect microbes?

Vivid™ SENSE has multiple simultaneous effects and points of action on the microbe which include:-

- Inactivation of energy-producing enzymes
- Denaturation of essential microbial proteins
- Physical disruption of membrane lipids

Proteins and lipids are essential components of bacteria, viruses, fungi and bacterial spores. Significant damage to these key microbial components is often fatal for the organism. Vivid™ SENSE causes rapid and significant changes at multiple sites within the microbe. The magnitude of this effect is so great that it is typically lethal to the microbe within minutes of contact.

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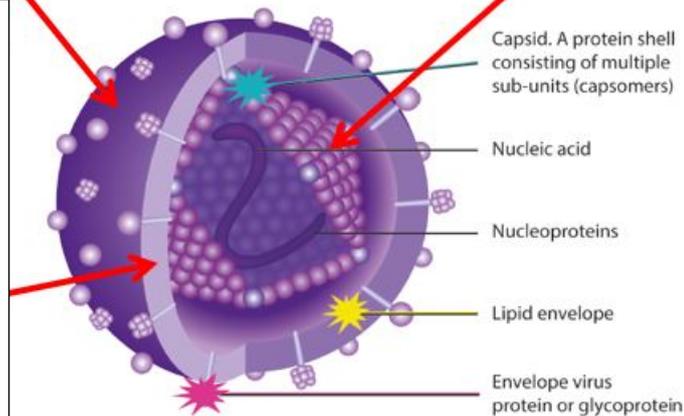
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Figure 1. The enveloped virus structures affected by Vivid™ SENSE

EVELOPE PROTEINS / GLYCOPROTEINS are an essential for enveloped viruses to gain entry to host cells. Vivid™ SENSE denatures these proteins rendering them unable to bind with specific host cell receptors. Inability to bind host cell receptors prevents the virus gaining entry to host cells.

CAPSID. Exposure of the CAPSID to Vivid™ SENSE results in the structure being physically pulled apart. This disintegration of the protein capsid prevents entry of non-enveloped viruses into host cells.

LIPID ENVELOPE assists with the entry of the enveloped viruses into host cells by fusing with the host cell membrane and depositing the viral capsid into the host cell cytoplasm. Vivid™ SENSE effectively strips away the lipid envelope, thereby inhibiting entry into the host cell.



Mick Barnes

Laboratory CEO