Getinge Clean

How the PURE® Hard Surface Formulation Works

PURE® Hard Surface has two active ingredients: Silver Dihydrogen Citrate (SDC) and citric acid. The SDC is a combination of silver ions (not metallic silver) and citric acid. Silver ions are a very powerful antimicrobial agent, and citric acid is also an effective antimicrobial agent. The combination of the two provides synergy — which means the SDC is actually more effective than what would be expected of the silver ions and citric acid individually.

The reason that SDC is effective against bacteria and molds is that the molecule delivers silver to the outer membrane of these organisms, and the silver binds with, disrupts and damages these membranes. In addition, some cells see SDC as a food source (because of the citrate part), and "digest" the SDC. Once inside the organism, the silver ion binds to and disrupts the DNA and other proteins inside the cell. These two mechanisms combine to produce rapid death of fungi and especially bacteria.

While viruses are much smaller than bacteria, and are not living organisms (they are bits of nucleic acid, inside one or more protein and/or fatty coats), the action of SDC is similar as for bacteria and fungi. With viruses, the silver ion in SDC reacts with the outer layer of the virus, destroying it. This prevents the virus from attaching to a host cell, which they need to reproduce. The silver ion also binds with the nucleic acid portion of the virus, also destroying its ability to replicate. Because of this dual action on viruses, PURE Hard Surface is especially rapid in its inactivation of both enveloped viruses (like Coronaviruses) and non-enveloped viruses (like Norovirus), which are the two main types of viruses.

The power of SDC is seen when comparing the kill times (many as low as 30 seconds) and concentration (PURE Hard Surface has 30 ppm SDC in it) to more conventional disinfectants, like quats. TEC-QUAT 128, for example, has most of its kill times around 10 minutes, with an active ingredient concentration of 850 ppm (at use-dilution). To be sure, there are quaternary disinfectants with faster kill times, but most have a similar level of active ingredients. This combination of powerful antimicrobial activity and low concentration allow PHS to have very low toxicity — in fact, it is one of only a handful of disinfectants on the market that require no signal word of "Caution", "Warning" or "Danger" from the EPA. These signal words are required to be placed on disinfectant labels by the EPA to give a quick indication to users about the toxicity level of the product.

The key points are that SDC works rapidly and effectively because of the silver ion embedded in the citric acid. It works at a very low concentration level, which affords PURE Hard Surface a very low toxicity rating for humans — not so much for bacteria, viruses and fungi.

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