Enviro Sanitiser
HAND SANITISER • STERILISER • DISINFECTANT

Enviro Sanitiser is a RTU (ready to use) sanitiser, disinfectant and surface spray. Our product is a plant based disinfectant that is safe to use and environmentally friendly. The base product is the newest generation of biodegradable QAC (Quaternary ammonium compound). It was developed by CSIR and registered by the NCRS in 2017. The base product has been laboratory tested and under laboratory conditions and killed 99.99% of pathogens tested. Our disinfectant is a QAC (Quaternary ammonium compound) and has been recognized as an effective means of killing viruses including Covid-19.

Benzalkonium Chloride (BKC), also called as alkyl dimethyl benzyl ammonium chloride (ADBAC). The chemical is a blend of alkyl-benzyl-dimethyl-ammonium chlorides of different even-numbered alkyl chain lengths. In addition to this, this chloride chemical is a nitrogenous cationic surface-acting agent belonging to the quaternary ammonium group.

Our base product is based on the latest scientific development of QAC products and the only one of its kind in South Africa, it has also received green certification in Australia.

Explained working QAC's

QAC (Quaternary ammonium compound) absolutely annihilates the coronavirus, a chemistry professor explains.

As Covid-19 cases in the US surges and fear sweeps the country, there's one product critical to our great national battle to flatten the curve, or slow the epidemic: QAC's (Quaternary ammonium compounds).

Respiratory viruses like the novel coronavirus, the flu, and the common cold can be spread via our hands. If someone is sick, a hand can touch some mucus and viral particles will stick to the hand. If someone is well, hands act like sticky traps for viruses. We can pick up droplets that contain the virus, and they'll stay on our hands, and perhaps enter our bodies if our hands touch our faces.

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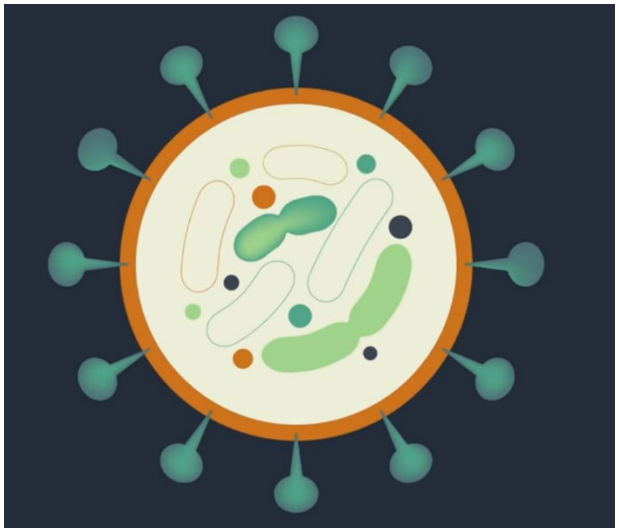
That's why our hands are the front lines in the war against Covid-19. The Centers for Disease Control and Prevention (CDC) recommends washing hands with QAC (Quaternary ammonium compound) as the top way to clean our hands.

The CDC prioritizes QAC (Quaternary ammonium compound). Yet, per news reports, people have been stocking up and hoarding sanitizer.

"That's because when you sanitise your hands with QAC (Quaternary ammonium compound), you're actually annihilating the viruses, rendering them harmless. QAC (Quaternary ammonium compound) is almost like a demolition team breaking down a building and taking all the bricks away", says Palli Thordarson, a chemistry professor at the University of New South Wales, who posted a viral Twitter thread on the wonders of QAC (Quaternary ammonium compound).



Virus cell structure. The outer layer of all virus is lipid (fat layer)

In a recent phone call, he explained why QAC is such an effective Covid-19 killer and why it's so important to a contact time of least 20 seconds.

First up: What is QAC (Quaternary ammonium compound)?

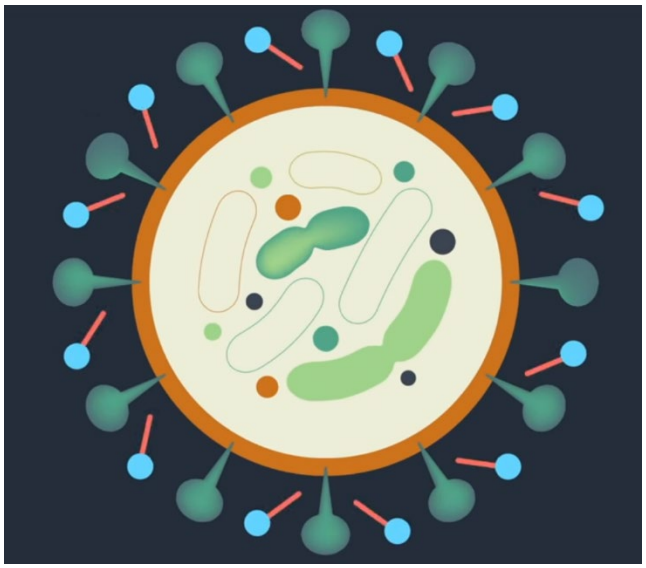
QAC (Quaternary ammonium compound), Thordarson explains, is common phrase for what chemists call amphiphiles. These are molecules that have a dual nature. One end of the molecule is attracted to water and repelled by fats

and proteins. The other side of the molecule is attracted to fats and is repelled by water.

It's this dual-nature chemical construction that makes QAC so effective. When you use QAC, it consists of a mixture of these amphiphiles, Thordarson explains. And they all do the same thing.

Think about what happens when you pour some olive oil into water. The oil pools up in a mass that floats. That's because fats don't mix with water, he says. But mix some QAC (Quaternary ammonium compound) into the oil and water and the oil will disperse. Basically, that happens because the QAC (Quaternary ammonium compound) is attracted to the grease, via its fat-loving side, but then tears it up, pulling it into the water via its water-loving side. It's a one-two punch. Surround the oil particles and move them away from one another.

QAC (Quaternary ammonium compound) molecules attack a splotch of grease.



Adding a QAC (Quaternary ammonium compound)

QAC (Quaternary ammonium compound) destroys this outer layer of the virus.

QAC (Quaternary ammonium compound) molecules attack a splotch of grease.

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Coronaviruses are enveloped viruses. This means they are one of the easiest viruses to kill with the appropriate disinfectant product when used according to the label directions.

Brookhaven National Lab.

Now, lucky for us, coronaviruses are a bit like the oil mentioned in the above example: bits of genetic information encoded by RNA surrounded by a coat of fat and protein. Thordarson likes to call viruses nano-sized grease balls. And grease balls, no matter the size, are the exact type of thing QAC (Quaternary ammonium compound) loves to annihilate.

Why does QAC (Quaternary ammonium compound) work so well on the SARS-CoV-2, the coronavirus and indeed most viruses?

Because it is a self-assembled nanoparticle in which the weakest link is the lipid (fatty) bilayer. A two part thread about QAC (Quaternary ammonium compound), viruses and supramolecular chemistry #COVID19pic.twitter.com/OCwqPjO5Ht Palli Thordarson (@PalliThordarson) March 8, 2020.

How QAC (Quaternary ammonium compound) destroys viruses.

The QAC takes care of the virus much like it takes care of the oil in the water. It's almost like a crowbar; it starts to pull all the things apart, Thordarson says.

One side of the QAC molecule (the one that's attracted to fat and repelled by water) buries its way into the virus's fat and protein shell. Fortunately, the chemical bonds holding the virus together aren't very strong, so this intrusion is enough to break the virus's coat. You pull the virus apart, you make it soluble in water, and it disintegrates, he says.

Then the harmless shards of virus get flushed down the drain.

The trick is this all takes a little time to happen, and that's why you need to give the QAC (Quaternary ammonium compound) at least 20 seconds on your hands.

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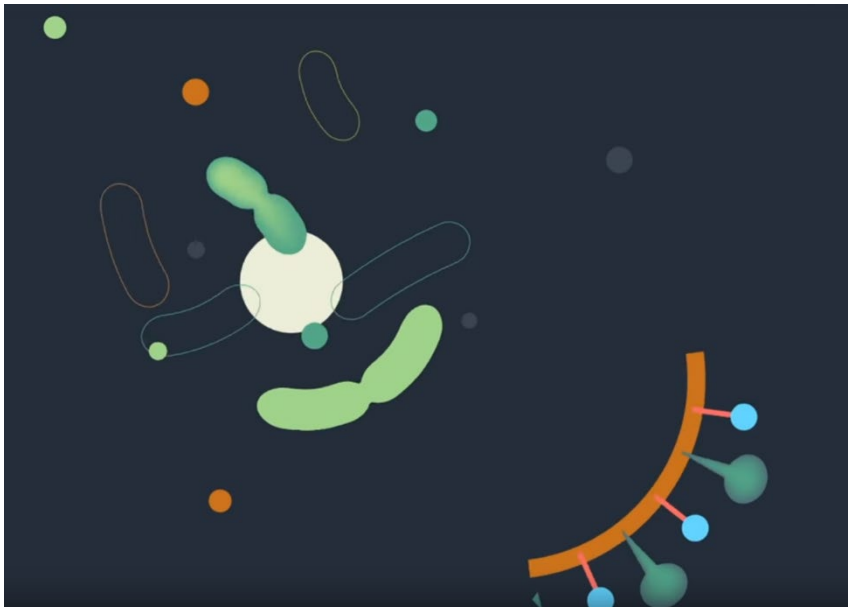

Banzolkonium Chloride a QAC destroys this outer layer of the virus and breaks it apart rendering it useless.

Thordarson likes to call viruses nano-sized grease balls. And grease balls, no matter the size, are the exact type of thing QACs loves to annihilate.

QAC (Quaternary ammonium compound) is mentioned 82 times as a way to control and kill viruses including the Human Corona virus as per the List N: Products with Emerging Viral Pathogens AND Human Coronavirus claims for use against SARS-CoV-2
Date Accessed: 03/31/2020

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Alcohol vs. Antiseptic – What's the difference?

Jun 13, 2019 | First Aid

Everyone has received a cut in their life. Whether it's big or small, it is always a good idea to clean the cut to disinfect it. Cleaning the cut will ensure it doesn't become infected as this can lead to further health issues. Many people believe using alcohol is the ideal way to disinfect a cut, however this is not the case. While alcohol may be able to kill bacteria, it can also cause damage to your skin and the wound bed. Applying alcohol to an open wound can delay or may even prevent healing. Instead, alcohol should only be used to sterilize medical tools and equipment. When it comes to cleaning wounds, antiseptic wipes or towelettes are the way to go.

Benzalkonium Chloride (BZK) wipes are good to use for skin disinfectant as they are effective against viruses, fungi and bacteria. These wipes will not harm, sting or dry out the skin unlike alcohol. For these reasons, BZK wipes are essential to any first aid kit!

Non-Alcohol-Based Hand Sanitizers

Benzalkonium Chloride, a quaternary ammonium, is the active ingredient contained in most alcohol-free hand sanitizer products available today. It is non-flammable, and the low concentrations of Benzalkonium.

Typically, these solutions, often water-based foams, are much easier on the hands and continue to provide protection well after the solution has dried. They pose much less of a threat in cases of accidental ingestion or as a potential fire hazard and are non-damaging to surfaces.

EXCLUSIVE: Sanitizer opposed by CDC kills coronavirus "surrogate" in lab tests by JAMES ROSEN, Sinclair Investigative Reporter Wednesday, April 1st 2020 AA

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WASHINGTON (SBG) - New scientific testing has found that a commonly used hand sanitizer -- whose active ingredient is not recommended for popular use by the Centers for Disease Control -- is overwhelmingly effective against a strain of the coronavirus highly similar to the one now wreaking havoc around the world, Sinclair has learned exclusively.

EXCLUSIVE: Sanitizer opposed by CDC kills coronavirus "surrogate" in lab tests (SBG)

The testing conducted by BioScience Laboratories in Bozeman, Montana was commissioned by Three Kings Corp., the Mississippi-based company that manufactures the hand sanitizer. Unlike the hand-rub products that CDC recommends on its website -- limited to alcohol-based sanitizers, manufactured with concentrations of 60 percent ethanol or 70 percent isopropanol -- DAB, like numerous other commercially available sanitizers, features an active ingredient that is not derived from alcohol: benzalkonium chloride (BZK). It's an ammonium compound that has been approved for registration by the Environmental Protection Agency and for over-the-counter sale by the Food and Drug Administration.

Dr. Sidney Bondurant, the chief medical officer for Three Kings, told Sinclair that BZK hand-rub products demonstrate greater longevity than alcohol-based ones in killing bacteria that have come into contact with human skin. "We know that we've got persistence," he said, citing an academic paper he co-authored last year in The American Journal of Infection Control.

The study showed that BZK-manufactured products demonstrated "persistent antibacterial efficacy" even up to four hours after bacterial contact with skin -- far longer than the ten minutes or so or skin protection offered by alcohol-based sanitizers .

That paper prompted Bondurant to commission the BioScience Laboratories, in Montana, for a test of DAB's efficacy against the coronavirus. On its Facebook page, the lab says the facility "specializes in the evaluation of Topical Antimicrobial products and has used various bacterial and spore strains as challenge organisms for determining the effectiveness of antimicrobial/antibacterial products."

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The study's leader, a virologist named Dr. Volha Teagle, was unable to obtain the strain of the coronavirus that emanated from Wuhan, China: the novel COVID-19 now causing devastation across the globe. So her team selected a structurally similar strain, known as 229E, and tested DAB against it.

"In the lab, DAB did eliminate 99.9 percent of the virus in the 30-second test," Bondurant said. "We also carried the test out to 60-seconds and 120-seconds of exposure time. All three of the tests showed the same thing."

"Since the action of benzalkonium is against the envelope of the virus, and the envelope does not mutate," Bondurant added in an email, "the virologists say that activity against the surrogate almost certainly means the compound will be active against the Wuhan."

In an email late Wednesday, Dr. Teagle, of BioScience Laboratories, said the facility has been testing a variety of formulations against viruses, including members of the coronavirus family, for over fifteen years. ***"Coronaviruses are large, enveloped viruses that are very sensitive to inactivation with many different chemicals...Many other viruses possess the same characteristics as coronaviruses, such as a viral envelope, and they, too, are very susceptible to inactivating agents."***

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Major Article

Demonstrating the persistent antibacterial efficacy of a hand sanitizer containing benzalkonium chloride on human skin at 1, 2, and 4 hours after application.

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Background: Use of hand sanitizers has become a cornerstone in clinical practice for the prevention of disease transmission between practitioners and patients. Traditionally, these preparations have relied on ethanol (60%-70%) for bactericidal action.

Methods: This study was conducted to measure the persistence of antibacterial activity of 2 preparations.
One was a non-alcohol-based formulation using benzalkonium chloride (BK) (0.12%) and the other was an ethanol-based formulation (63%) (comparator product). The persistence of antibacterial activity was measured against Staphylococcus aureus using a technique modification prescribed in American Society for Testing and Materials protocol E2752-10 at up to 4 hours after application.

Results: The test product (BK) produced a marked reduction in colony-forming units at each of the 3 time points tested (3.75-4.16-log10 reductions), whereas the comparator produced less than 1-log10 reduction over the same time. The differences were highly significant.

Discussion: In the course of patient care or examination, there are instances where opportunities exist for the practitioner's hands to become contaminated (eg, key boards and tables). Persistent antibacterial activity would reduce the chances of transfer to the patient.

Conclusions: These results show a major improvement in persistent antibacterial activity for the BK formulation compared to the comparator ethanol-based formulation.

Key Words: Antibacterial Persistence Ethanol Staphylococcus aureus ASTM E2752-10

Nosocomial infection

The prevention of nosocomial infections has been a goal for the medical community since the elucidation of the germ theory of disease.
Modern approaches include extensive facilities sanitation programs and multiple personal hygiene practices.
1 Of the latter, regular hand washing and the use of hand sanitizer products are now routine.
2 Hand sanitizer formulations have traditionally contained ethanol or other short-chained alcohols (60%-70%) as the active ingredient responsible for the antibacterial action. Ethanol provides its antimicrobial action through desiccation of the target organisms.
Applied to the skin, the ethanol-based sanitizers are effective in reducing the bioburden of many types of microbes.
3 However, alcohols are volatile and can evaporate from the skin's surface, so the residual antibacterial activity may be limited.
4 The importance of persistent antimicrobial activity has been increasingly recognized in the medical/surgical setting.
5 Recent reports have also shown that certain pathogen populations are becoming more tolerant to ethanol exposure.
6 These data suggest that the use of alternative antibacterial actives might be a benefit in the clinical setting
Alcohol-free formulations have been developed, with the surfactant benzalkonium chloride (BK) as the active antibacterial agent. This active ingredient acts by disrupting the cell membranes of the target organisms and is active at relatively low concentrations (0.12%-0.13%).
7 Since this surfactant is not volatile, it is expected to remain on the skin as the product dries. Although this report focuses only on the antibacterial action of BK against Staphylococcus aureus, this surfactant has also been studied for virucidal activity against influenza, Newcastle disease, and avian infectious bronchitis viruses.

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