



PRODUCT INFORMATION

Product

Safe Guard 45H25

Description

Hypochlorous acid disinfectant / sanitiser

Benefits

- Wide range of approvals.
- Proven effective - against a wide range of microbes, including coronaviruses.
- Versatile - can be used in a wide range of applications.
- Safe to use - Can be safely applied directly to skin without dilution. Non-Toxic
- Well tolerated - mimics human immune system.
- Fast rate of kill and no resistance.
- Safe to transport & store - very low hazard classification.

Specification

Appearance	:	Clear, colourless liquid with faint, characteristic odour
Specific Gravity	:	1.00 – 1.01
pH as supplied	:	4.5 – 5.5
Flash Point	:	Non-flammable
Culligan Hazard Category	:	A – Non-Hazardous
U.N. No.	:	Not Classified as Hazardous for Air, Land or Sea Transport.
IMDG Class	:	Not Classified as Hazardous for Sea Transport.

Technology

CULLIGAN SAFE GUARD 45H25 is a high purity aqueous solution of hypochlorous acid. If you're like most people, you've never heard of hypochlorous acid, despite the fact that it's in your body - as in right now - fighting the good fight. And by that we mean the fight against infection, because it's the substance your white blood cells produce to keep you healthy. Because of this, hypochlorous acid uses are increasing every day.

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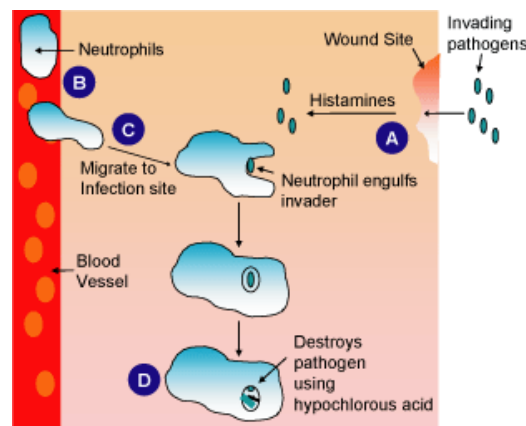
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You might be surprised to learn that your immune system’s fighter, hypochlorous acid, is actually based on chlorine. It’s so gentle that hypochlorous acid is FDA approved for use in wound care and eye care products and is also common in veterinary care. It’s also used in the UK in agriculture, as a biocide for horses and in dental care. It can kill E. coli and salmonella on contact with no harmful residues, which makes it ideal for food applications. Hypochlorous acid is FDA approved for use in produce preservation and USDA approved for organic crop production. There has been extensive research on the gentleness and efficacy of hypochlorous acid. It’s so effective that hospitals use it as a disinfectant in both the US and Japan.

We have harnessed the power of hypochlorous acid with our novel production process to produce a safe but powerful multi-purpose cleaner and deodorizer that’s just as effective as conventional cleaners but with no harmful chemicals, residues or fumes. What’s more it allows the solution to be stable for much longer than previously available. We do not add unnecessary ingredients to stabilize or preserve our product stability.

Hypochlorous acid, the active ingredient in **CULLIGAN SAFE GUARD 45H25** is produced naturally by the body to combat infection. White blood cells release this natural oxidant to fight invading pathogens. The hypochlorous acid produced by the human body’s immune system:

- ✓ Reacts readily with a variety of microbial sub-cellular compounds
- ✓ Interferes with their metabolic processes
- ✓ Kills individual bacterium exposed within milliseconds



- A. When a wound breaks human skin, it creates a gateway for harmful pathogens to invade human cells.
- B. Neutrophils, which are a type of white blood cell, live in human blood vessels.
- C. When pathogens invade a human cell, neutrophils travel to the infection site to destroy the invading pathogen. The first step in this process is engulfing the pathogen.
- D. Once the neutrophil has completely surrounded the pathogen, it produces an oxidant, hypochlorous acid. Hypochlorous acid is a biocide, meaning it kills organic material. Once produced by the neutrophil, it kills the bacteria almost instantly.

CULLIGAN SAFE GUARD 45H25 mimics the production by the human immune system of the body's natural anti-microbial. Our **CULLIGAN SAFE GUARD 45H25** production process creates a high purity product.

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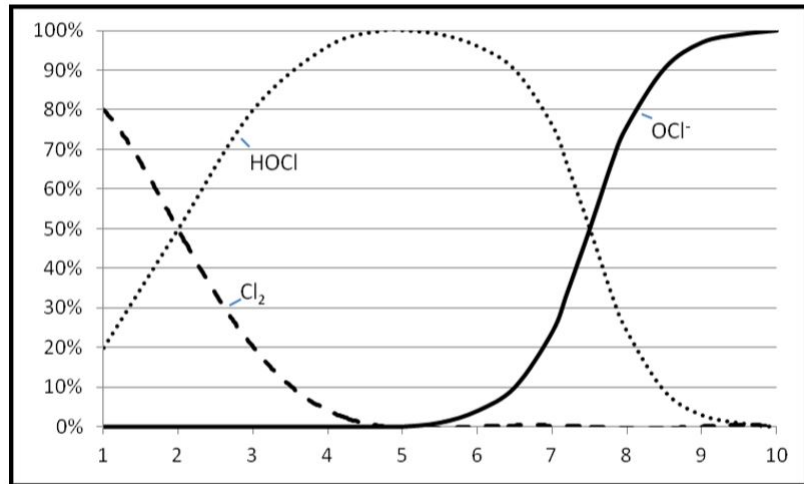


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Hypochlorous acid vs pH

Hypochlorous acid is a weak acid. The pH of a 250ppm solution is between 4.5 and 5.0. An equilibrium exists between hypochlorous acid, which is the active biocide, and hypochlorite, which is not an effective biocide.

At pH 4.5 to 5.0 the chlorine will all be present as the hypochlorous acid, as shown by the dotted line on the graph below.



As the pH increases, the percentage of hypochlorous acid falls. At pH 7.5 only 50% of the chlorine is present as hypochlorous acid and by the time the pH reaches 8.5 only 10% of the chlorine is present as hypochlorous acid.

The pH range of **SAFE GUARD 45H25** is precisely at the point where 100% of the active ingredient is present as hypochlorous acid.

Another benefit of hypochlorous acid being a weak acid is that **SAFE GUARD 45H25** acts as a mild descaler, keeping metal surfaces clean.

Applications

There are many applications for **CULLIGAN SAFE GUARD 45H25** are almost limitless – here are just a few:

- Infection Control
- Surface Sanitisation
- Laundry

Since **SAFE GUARD 45H25** is non-irritant and non-persistent it is ideal for misting and sanitising tunnels.

Use Instructions

Surface disinfection

Apply to a **CLEAN** cloth which is then used to clean and disinfect the surface and **ALLOW TO DRY**

No need to rinse.

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For better coverage, do not spray directly onto the surface - always spray on cloth before wiping.

For surface disinfection use 300 - 400ml per square metre to ensure surface is fully wetted.

Misting and Sanitising Tunnels

This product is non-irritant and is intended for use without dilution. Follow equipment manufacturer’s instructions.

Safe Guard 45H25 is a ready-to use product. As such we do not recommend the product be diluted. The product testing and certification is for the product in its un-diluted form, therefore if the product is diluted it will invalidate this.

Regulatory Approvals and effectiveness

SAFE GUARD 45H25 is registered under the Emirates Conformity Assessment Scheme (ECAS). Certificate number 20-06-13984/E20-06-003558.

SAFE GUARD 45H25 is certified as a Disinfectant Sanitizer by Dubai Municipality Public Health & Safety Department reference number CPRE-2020-013312.

SAFE GUARD 45H25 has been tested by an independent, accredited laboratory against the requirements of EN 1276:2019 Chemical disinfectants and antiseptics– Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas — Test method and requirements (phase 2, step 1). Their report concludes that “According to EN 1276:2019, Safe Guard 45H25 POSSESSES BACTERICIDAL activity at concentration of 50.0% v/v and 80.0% v/v of the working concentration as tested **after 30 seconds** at 20°C under CLEAN conditions (0.3 g/l bovine albumin) against *Pseudomonas aeruginosa* ATCC 15442, *Escherichia coli* K12 NCTC 10538, *Staphylococcus aureus* ATCC 6538 and *Enterococcus hirae* ATCC 8043”.

SAFE GUARD 45H25 has been tested by Dubai Central Laboratory against BS EN 1276: 2009 part C: Bacteria Activity of Disinfectants and Antiseptics. The bacterial strains used in this test are *Pseudomonas aeruginosa* - ATCC15442, *Staphylococcus aureus*- ATCC 6538, *Enterococcus hirae* - ATCC 10541 and *Escherichia coli* - ATCC 10536. The report concluded that “**Based on EN 1276 (2009), the tested product Safe Guard 45H25- Hypochlorous acid Sanitizer possesses bactericidal activity in 5 minute at 20°C under dirty condition**”.

SAFE GUARD 45H25 has been tested by Dubai Central Laboratory against BS EN 1650 - Fungicidal and Yeasticidal Activity of Disinfectants and Antiseptics. The test organisms used in this test were *Candida albicans* ATCC10231 and *A.brasiiliensis* ATCC 16404. The report concluded that “**Based on EN 1650, the**

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tested product Safe Guard 45H25- Hypochlorous possesses Fungicidal and Yeasticidal activity in 15 minute at 20°C under dirty condition”.

SAFE GUARD 45H25 has also been tested by an independent, ISO 17025 accredited laboratory for Antimicrobial Activity of a Disinfectant. The test organisms used in this test were *Candida Albicans*, *Aspergillum Enterococcus Hirae*, *E-coli*, *Salmonella*, *P. aeruginosa* and *S. aureus*. **SAFE GUARD 45H25** achieved a 99.999% reduction against all microorganisms tested **after 30 seconds**. They also tested the purity, stability to hard water and cleaning efficiency and concluded “The analysed sample meets the requirements specified in GSO 1948:2009 Germicidal Liquid Detergent for General Purpose with respect to the above parameters”.

SAFE GUARD 45H25 has been tested for virucidal effectiveness by BluTest Laboratories Ltd. In the UK, who are UKAS accredited for **EN 14476:2013 + A2:2019 Chemical disinfectants and antiseptics – Quantitative suspension test for the evaluation of virucidal activity in the medical area** under clean and dirty conditions. The product was found to be effective against *Vaccina virus* VR-1549 Elstree strain/Vero cells. EN 14476:2013 + A2:2019 Annex A (Informative – Enveloped viruses) which includes

- Poxviridae
- Herpesviridae
- Filoviridae (e.g. Ebola, Marburg)
- Flavivirus
- Hepatitis C Virus (HCV)
- Hepatitis Delta Virus (HDV)
- Influenza Virus
- Paramyxoviridae
- Rubella Virus
- Measles Virus
- Rabies Virus
- Coronavirus (e.g. SARS, MERS)
- Human Immunodeficiency Virus (HIV)
- Human T Cell Leukemia Virus (HTLV)
- Hepatitis B virus (HBV)

As such, the laboratory concluded that **“This product therefore is effective against all enveloped viruses as defined in EN 14476:2013 + A2:2019 Annex A*.** This therefore includes all Coronaviruses”.

As a responsible company, Culligan always want to ensure that our products are safe and effective. With this in mind, we recently commissioned a report by Cutest

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Systems Ltd. – a contract research organisation specialising in dermatology and ophthalmology, based in the UK.

The full report is available upon request and the Executive Summary is available in Technical Bulletin TB-H15 “Safety and Efficacy Report for Hypochlorous Acid” – the active ingredient in **SAFE GUARD 45H25**.

The report concludes “the available data on the uses of HOCl solutions in healthcare applications and food preparation demonstrate the suitability of HOCl mist, fog and other disinfection strategies to control pathogens in the environment, including coronaviruses. HOCl has been widely shown to be safe when used on open wounds, in the eyes and the nasal passages, demonstrating that skin, eye or inhalation contact are highly unlikely to have negative effects on individuals. Based on the available scientific literature, hypochlorous acid solutions of approximately 250ppm and an in use pH range of between pH3.5 and pH5.5 are demonstrated to be highly effective for disinfection and to possess an excellent toxicology and safety profile making such products particularly suitable for environmental disinfection applications, such as reducing environmental transmission of viruses between people”.

Packaging

SAFE GUARD 45H25 is available in 150ml, 300ml and 500 ml spray bottles, 5 Kg/5 Litre, 20 Kg/20 litre and 200 Kg/200 Litre plastic drums and 1,000 Kg/1000 Litre Intermediate Bulk Containers (IBCs)

Safety

This category includes products which are not classified as hazardous.

Products in this category are predominantly water-based and have a neutral pH (in the range of 4.5 - 8.0).

Although materials in this category are classified as non-hazardous, as with all chemicals they should be handled with care. Eye contact should be avoided, and gloves should be worn by persons with sensitive skin who are repeatedly handling the concentrated product.

GENERAL SAFETY INSTRUCTIONS FOR ALL CHEMICALS

Ensure that the operator is fully informed and familiar with the use of the product. Avoid ingestion of the product by mouth and nose. To eliminate the possibility of accidental ingestion, operator should never eat, drink or smoke when using

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chemicals. In addition, protective clothing should be removed, and the hands washed prior to eating, drinking or smoking.

Store in the original containers and ensure that the cap is always secure.

We recommend that the product is stored at temperatures not exceeding 40°C or below 0°C. Ideally, we recommend that the product should be stored at room temperature – i.e. below 25°C.

Do not stack more than two high for prolonged periods.

We recommend that the product is protected from direct sunlight.

Store out of the reach of children and away from thoroughfares.

Please refer to the Material Safety Data Sheet for more detailed information.

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