

GREENCARE

DELIVERING A SAFER ENVIRONMENT

DISINFECTION REPORT FOR COVID-19

CLIENT NAME : ED ZUBLIN SINGAPORE
PROJECT SITE : DTSS07 – X1 / LS1 / LS3
START DATE : 17TH APRIL 2020

PREPARED BY:

GREENCARE PEST CONTROL & CLEANING PTE LTD

60 ALBERT STREET #08-02 OG ALBERT COMPLEX #08-02 SINGAPORE 189969
TEL: 6920 8656 | 6920 8657 EMAIL: ENQUIRY@GREENCARE.COM.SG

NEA LICENSE: NEA201313475D



NEA LICENSE No: NEA201313475D





Disinfecting Covid-19

TABLE OF CONTENTS

1	INTRODUCTION	PAGE 1
2	EFFICACY TESTS OF TECcare CONTROL – Chemical Used	PAGE 2
3	Method Statement	PAGE 3 - 4
4	Disinfected Area	PAGE 5
5	Summary Report	PAGE 6



Our Solutions:

TECcare® CONTROL Antimicrobial Technologies

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

TECcare CONTROL 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.

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.

Introduction

Greencare Pest Control & Cleaning Pte Ltd has committed to maintain a high service standard of disinfection services at Project DTSS07 amid the current Covid-19 pandemic world-wide. Health and safety of the personnel at the infected area which includes all workers, staff and Greencare technicians are our utmost priority when conducting the disinfection. We are committed in taking all the necessary procedures to ensure that all personnel involved at the infected site are exposed to the lowest practicable level of risk.

Standard Protocol to Observe NEA Guide Lines:

Areas where the confirmed case has visited, will be sealed off. This will prevent unsuspecting persons from being exposed to those surfaces;

- Disinfection crew are properly attired;
- Equipment are cleaned after use;
- While cleaning using disinfection, all windows are opened for ventilation;
- Wipe down of high touch areas with disinfectant in which we are using **TECcare Control**. (Example of high touch areas: Door knobs, Switches, lift buttons, staircase railing, etc); and
- The area will be left untouched for the next 2 hours after **TECcare Ultra/Control** has been used to kill the Coronavirus of a confirmed case.



TECcare CONTROL

(Note to Reviewer: Marketing claims may be used on the front panel.)

Cleaner • Disinfectant • (Non-Food Contact) Sanitizer
• Deodorizer • Fungicide • Mildewstat • Virucide*

ACCEPTED

11/21/2016

Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 85343-1

ACTIVE INGREDIENTS:

Didecyl Dimethyl Ammonium Chloride.....10.14%
Alkyl (50% C₁₄, 40% C₁₂, 10% C₁₀)

Dimethyl Benzyl Ammonium Chloride.....6.76%

OTHER INGREDIENTS:.....83.10%

TOTAL:100.00%

EFFICACY TESTS OF TECcare® CONTROL

TECcare® CONTROL 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 TECcare® CONTROL technology platform is based around the quaternary ammonium compounds didecyl dimethyl ammonium chloride (DDAC) and benzalkonium chloride (BAC) with an adjuvant effect to enhance its antimicrobial efficacy.

Key features of the TECcare® CONTROL technology

In addition to very high levels of antimicrobial efficacy, TECcare® CONTROL is fragrance free, chlorine free, alcohol free and exhibits the following key qualities when in use; non-corrosive, non-irritant, non-toxic, food safe, safe in use, cost effective, excellent levels of user acceptance with a prolonged antimicrobial effect up to 28 days and excellent materials compatibility.

Figure 2

MICROBIAL CLASS	ANTIMICROBIAL EFFICACY TEST*	CONTACT TIME (MINUTES)	LOG REDUCTION
BACTERIA (Gram-positive/ Gram-negative)	EN 1276 ¹⁹	1	>6
	AOAC - Bactericidal ²⁰	10	>6
VIRUSES (enveloped and non-enveloped)	EN 14476 ²¹	5	>4
	AOAC - Virucidal ²²	5	>4
FUNGI (mould and yeast)	EN 1650 ²³	1	>5
	AOAC - Fungicidal ²⁴	10	>6
BACTERIAL SPORES	EN 13704 ²⁵	60	>3

TABLE 1. Antimicrobial efficacy of TECcare® CONTROL

How effective is TECcare® CONTROL

TECcare® CONTROL is a high level, broad spectrum disinfectant cleaner which is effective against all microbial classes up to and including bacterial spores. See Table 1 for a summary of the microbial classes and the results of extensive in-vitro testing performed at independent, accredited laboratories.

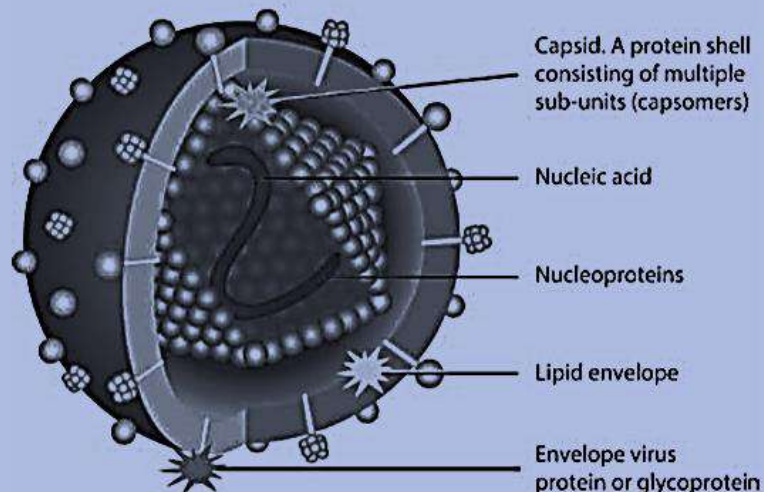
* All testing was performed using hard water and under dirty conditions in order to present the toughest challenge to the TECcare® CONTROL

*LOG REDUCTION OF > 4 means it can kill 99.99% of the virus

The prolonged effect of TECcare CONTROL

TECcare CONTROL 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 TECcare CONTROL will come under attack from the disinfectant and therefore be less likely to affect the next person to touch them.



How does TECcare® CONTROL affect microbes?

TECcare® CONTROL is a powerful lytic agent which is based on the quaternary ammonium compounds benzalkonium chloride and didecyl dimethyl ammonium chloride. Quaternary ammonium compounds have multiple effects and points of action within the microbe (see Figure 2) which include:

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

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. TECcare® CONTROL 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 (see Table 2).



Disinfection process at C885 using VP300ES Electrostatic Mister

Method Statement

In the event of a confirmed case was in the premises, the management would need to seal off (where possible) the areas where the person has been. Open the door and windows to the affected areas (if possible) and leave the areas undisturbed for at least 8 hours. Cleaning and disinfection should be carried out after the area has been aired. There is no need for airing and special cleaning of other areas. Routine cleaning of these other areas can be carried out without additional PPE than what is usually used. (Extracted from MOH PANDEMIC READINESS AND RESPONSE PLAN FOR INFLUENZA AND OTHER ACUTE RESPIRATORY DISEASES (REVISED APRIL 2014).

Preparation for Disinfection:

- I. Disinfectant Used – TECcare® CONTROL Antimicrobial
- II. Equipment – VP300ES Electrostatic Mister



VP300ES Electrostatic Mister

Electrostatics is the process of adding an electrical charge to the liquid droplets when they are sprayed. When you spray a solution that is properly charged with electrostatics, the solution will envelop the targeted object to provide an even 360 coating, adhering to hidden and shadowed areas, with no runs or drips on vertical surfaces, delivering rapid and effective disinfection to all surfaces and areas.

Disposable Gloves	Goggles	Masks (N95)	Disposable Coverall	Foot Cover
✓	✓	✓	✓	✓

Biohazard Waste Bag	Cable Tie	Permanent Marker	Incineration
✓	✓	✓	✓

Protocol:

Safety Briefing

- Conduct safety briefing at the area
- Record safety briefing form and go through checklist

Donning PPE

- Perform donning of PPE at the cold area

Closure of Affected Area

- Ensure signages are displayed on visible areas
- Ensure physical barriers such as caution banner tape, safety cones are in place
- Doors are open

Perform Electrostatics Misting

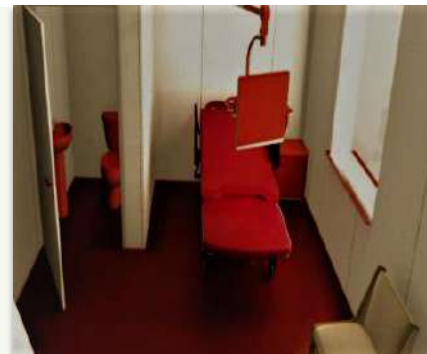
- Chemical : TECcare Control
- Equipment : VP300ES Electrostatic Mister

Methodology

- Disinfect the crew members at cold areas before entering the barriers.
- Perform misting the entire affected area using VP300ES Electrostatic Mister with electrostatic charged on the chemical, it will be attracted to the negative particles and cover the entire area.
- Using UV goggles will be able to see the entire area including the atmosphere turn green colour.
- Disinfected areas will be coated with a protection layer of food safe chemical that will last up to 28 days if undisturbed.

Our Solutions to Control Covid-19 **TECcare® CONTROL Antimicrobial Technologies**

The pictures on the right shows the difference between using normal disinfectant with wipe down method vs TECcare® Control with Electro-Statics Mister. The later effect produced an Environmental Shield Protection of the entire room compared with partial disinfected areas seen through UV goggle.



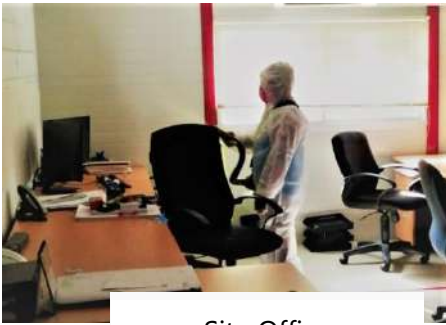
Wipe down

- Perform wipe down with the same chemical at high touch area.

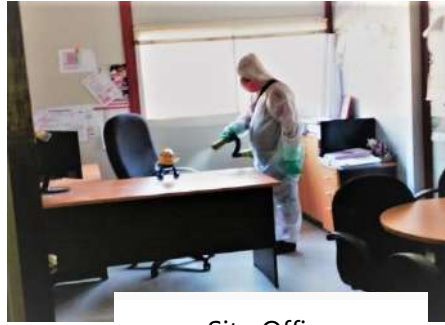
Disposal of Hazardous Material

- Leave the area closed for 60 mins for the chemical to settle and contact time.
- Leave the infected area and perform doffing of PPE at the cold area.
- Disposed PPE into a Biohazard waste bag and fastened it with cable ties.
- Double-bagged by using another biohazard bag and fasten with a cable tie.
- Place used Biohazard waste bag in secured area.
- Perform hand hygiene with sanitizer.
- Reinstate Work

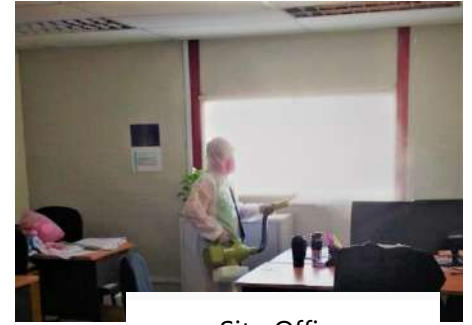
Disinfected Areas:



Site Office



Site Office

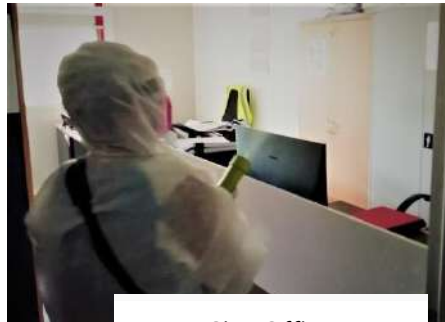


Site Office

Contai



Walkway Corridor



Site Office



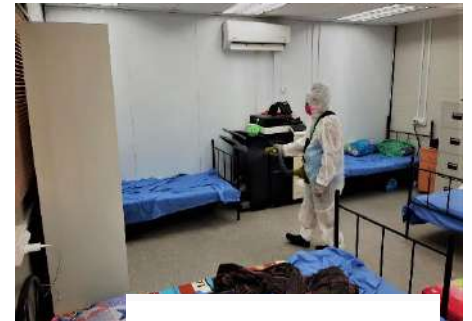
Container Office



Rest Area



Smoking Area



Workers Quarter



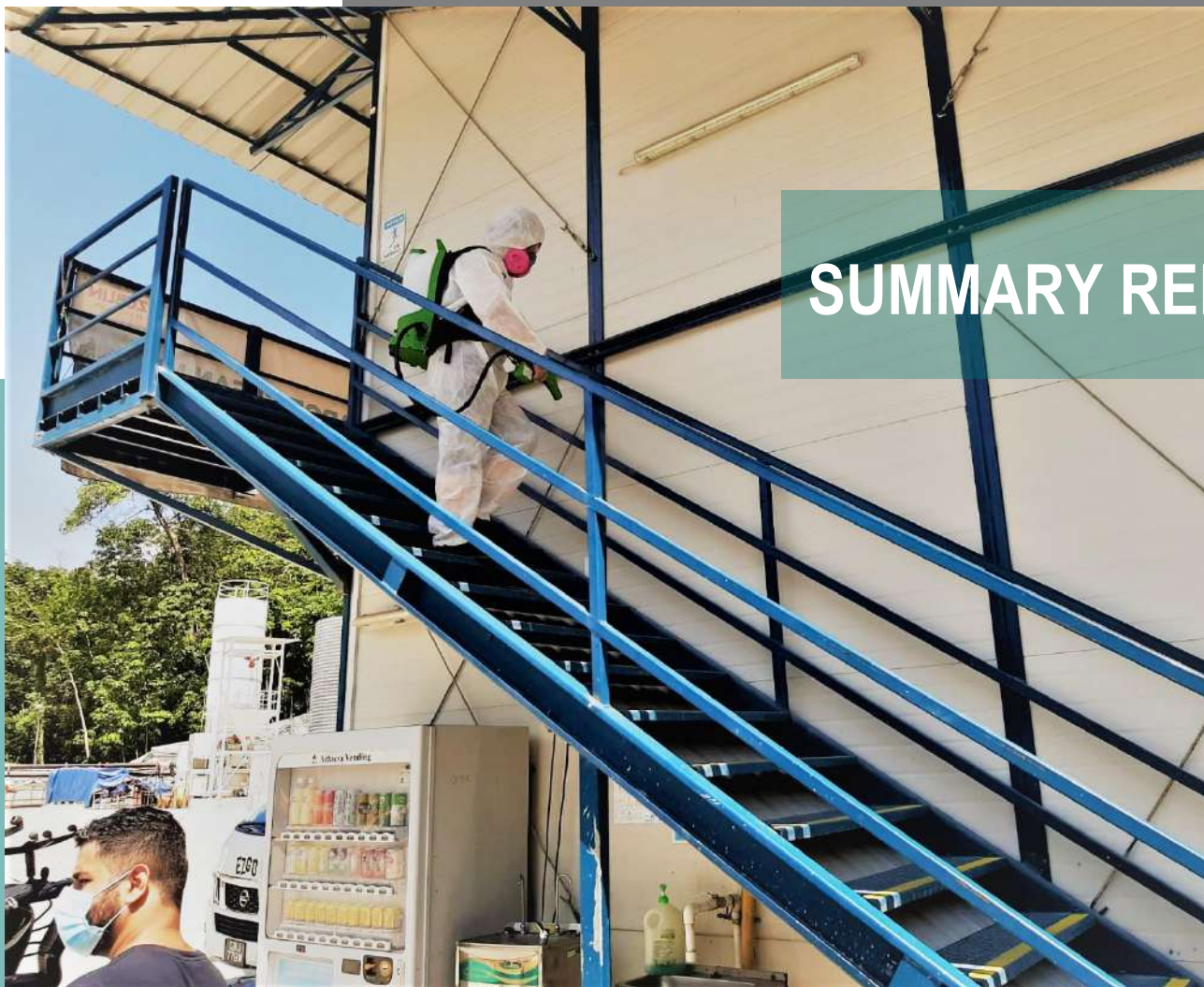
Office Corridor



Office Corridor



Workers Quarter



SUMMARY REPORT

Summary Report

- Chemical Used : TECcare® CONTROL Antimicrobial – 50 Litres
- Equipment Used : VP300ES Electrostatic Mister
- PPE : Disposable coverall / gloves / mask-N95 / goggles / foot cover
- Disinfected Area
 - X1 / LS1 / LS3
 - Container Office / Site Office
 - Walkway Corridors
 - Rest Area / Storage Area / Smoking Area
 - Worker Quarter
- Protocol : Reference to method statement at pg. 3 – pg. 4
- Hand Hygiene : Sanitize with hand sanitizer