



Breaking the chain of
infection through
innovation

Titan Healthcare
(Antibacterial) Products
Ltd

An introduction to - Steri-Core™

Scientists believe that over 80% of infections are transmitted via touch. Standard handles are without doubt one of the largest carriers of healthcare associated infections



Our Mission:

The most common touch point within buildings; door handles if we could reduce the danger of cross contamination from the most common touch point, we could reduce this all-important 'mode of transmission' from the chain of infection and minimise outbreaks.

The virus can remain infectious on solid surfaces and is also resistant to many cleaning solutions, it has been known to persist on dry surfaces for several weeks.

To minimise, the transmission of bacteria and viruses between patients, staff and visitors to any and all healthcare buildings - along with any other high footfall public buildings.

Steri-Core™

Steri-Core™

Antibacterial door handles

- The World's first antibacterial 'to the core' door handles.
- No other handles, in the World, have been tested, certified and proven to destroy Norovirus*



Clinically proven & ISO tested to kill 99.9% of all known human harmful bacteria including:

- Feline Calicivirus (EPA recognised surrogate for the Human form of NOROVIRUS) **
- MRSA
- E. Coli
- C.Difficile
- Salmonella
- Fungal
- Legionella



**Feline Calicivirus (EPA recognised surrogate for the Human form of NOROVIRUS)

- So What is Norovirus?
- Norovirus, also known as winter vomiting disease, causes acute gastroenteritis and is highly infectious. The virus is easily transmitted through contact with infected individuals from one person to another, from infected surfaces or from food.
- Outbreaks are common in semi-enclosed environments such as hospitals, nursing homes, schools and cruise ships and can also occur in restaurants and hotels.
- Symptoms include vomiting, projectile vomiting, diarrhoea and fever. Most people make a full recovery within a couple of days but it can be dangerous for the very young and elderly people. (Source GOV.UK).

Cont:

- There is no treatment or vaccine, and outbreaks require expensive cleaning, with lost working days when staff are infected adding to the burden.
- Its impact is also felt beyond healthcare, with cruise ships and hotels suffering significant damage to their reputation when epidemics occur among guests.
- Although the virus was identified over 40 years ago, the lack of methods to assess infectivity has hampered the study of the human pathogen.
- The virus can remain infectious on solid surfaces and is also resistant to many cleaning solutions.
- ‘That means it can spread to people who touch these surfaces, causing further infections and maintaining the cycle of infection.
- Norovirus has been known to persist on dry surfaces for several weeks.
- It can withstand numerous strong cleaning agents such as alcohol-based hand sanitizer and chlorine-based washes because it lacks a protein envelope.

Cont:

- Financial costs:
- According to Bruce Y. Lee, MD MBA * et al. (ABSTRACT OF THIS REPORT)
- \$60 billion (approx. £44 Billion)
- That's what norovirus is estimated to cost our world each year based on the computational simulation model study published in PLOS ONE as follows:.
- Based on our computer simulation model developed by members of the Public Health Computational and Operations Group (PHICOR) and the Department of International Health at Johns Hopkins Bloomberg School of Public Health working with the Centres for Disease Control and Prevention (CDC),
- North America and South America account for over \$22 billion
- Europe nearly \$8 billion.
- Africa over \$3.8 billion
- South and East Asia over \$6.7 billion
- Western Pacific region close to \$9 billion.

Cont.

- NHS England reported numbers.
- The costs to the NHS in England is reported to be over £100M - not including societal costs, or, the costs to the Scottish/Welsh and Irish NHS).
- In England (2014/15), there were:
 - 858 outbreaks
 - 808 ward/bay closures

Cont.:

- These figures probably underestimate the costs as the figures are quite conservative; as many norovirus cases go unreported.
- However, attention to norovirus has not matched the cost. You may hear of outbreaks here and there in the news but, did you realize the true magnitude of the norovirus problem?
- Did you know that norovirus is a truly global problem?
- Do you recognize how many low and middle income countries struggle with norovirus?
- Did you know that the highest death rates from norovirus occur among children in developing countries?

Steri- Core™

- Are the only handles, in the World, ISO tested, to destroy Feline Calicivirus (Norovirus).

Results: Feline calicivirus, Strain F-9, ATCC VR-782 (U.S. EPA-Approved Human Norovirus Surrogate):

- ISO 22196 Method
- Study Identification Number GLP1454
- *L-A-B ISO 17025 Accredited - Certificate Number L2450 - Testing*
- Protocol Number P1570
- Product Identity DBC/CC504/18124 Black Anti-Microbial Compound
- Lot#: 71088
- Test Microorganism(s)

Cont:

- For Study Identification Number GLP1454, one microorganism was tested to determine the antimicrobial efficacy of the submitted test surface, DBC/CC504/18124 Black Anti-Microbial Compound (Lot#: 71088), at a contact time of 8 and 12 hours when tested under the ISO 22196 method specifications.
- After incubation for the first selected contact time (8 hours \pm 1 hour) at $36 \pm 1^\circ\text{C}$, the DBC/CC504/18124 Black Anti-Microbial Compound (Lot#: 71088) test surface demonstrated a 98.70% (or 1.85 log₁₀) reduction against Feline calicivirus, Strain F-9, ATCC VR-782 when compared to the control surface.
- After incubation for the second selected contact time (12 hours \pm 1 hour) at $36 \pm 1^\circ\text{C}$, the DBC/CC504/18124 Black Anti-Microbial Compound (Lot#: 71088) test surface demonstrated a 99.00% (or 2.00 log₁₀) reduction against Feline calicivirus, Strain F-9, ATCC VR-782 when compared to the control surface.

Cont:

The following was the result of DBC/CC504/18124 Black Anti-Microbial Compound (Lot#: 71088) when tested against Feline calicivirus, Strain F-9, ATCC VR-782 at a contact time of 8 hours.

Dilution	Plate Recovery Control	Virus Test Film (Lot: 71088)
10 ⁻¹	+ + + +	+ + +
10 ⁻²	+ + + +	+ ○ ○
10 ⁻³	+ ○ + +	○ ○ ○
10 ⁻⁴	○ ○ ○ +	○ ○ ○
10 ⁻⁵	○ ○ ○ ○	○ ○ ○
10 ⁻⁶	○ ○ ○ ○	○ ○ ○
per 0.100 ml	50 log _{10 50} TCID	75 log _{10 50} TCLD
per Carrier	10 log _{10 50} TCID	23 log _{10 50} TCLD

Cont:

The following was the result of DBC/CC504/18124 Black Anti-Microbial Compound (Lot#: 71088) when tested against Feline calicivirus, Strain F-9, ATCC VR-782 at a contact time of 12 hours.

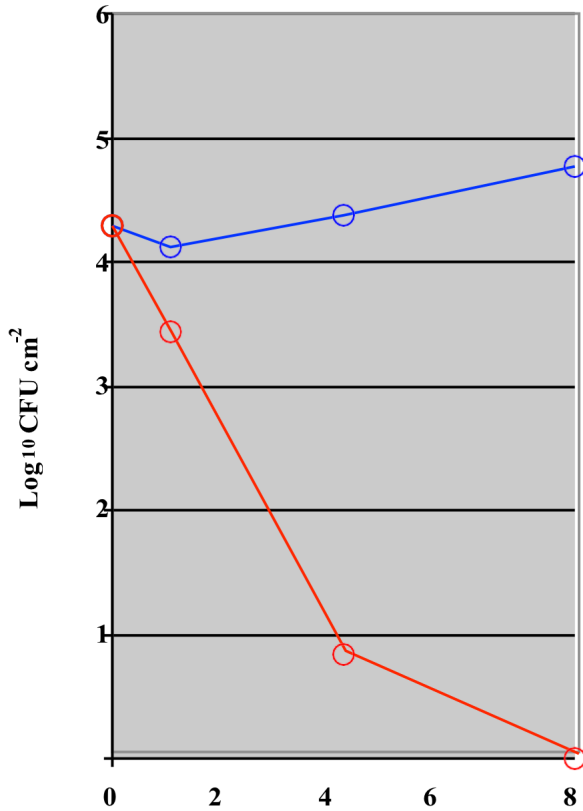
Dilution	Plate Recovery Control			Virus Test Film (Lot: 71088)			
D ₀ -1	+	+	+	○	+	○	+
D ₀ -2	+	+	+	○	○	○	○
D ₀ -3	○	+	○	○	○	○	○
D ₀ -4	○	○	○	○	○	○	○
D ₀ -5	○	○	○	○	○	○	○
D ₀ -6	○	○	○	○	○	○	○
per 0.100 ml	3.00 log ₁₀ TCID ₅₀			.00 log ₁₀ TCLD ₅₀			
per Carrier	1.48 log ₁₀ TCID ₅₀			.48 log ₁₀ TCLD ₅₀			

E.Coli, MRSA, Salmonella

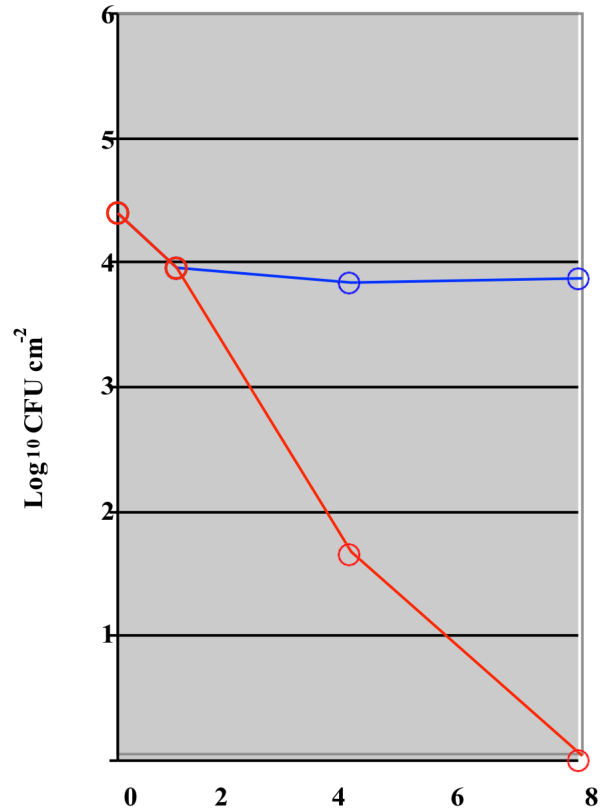
- STUDY REPORT: Determination of the Antibacterial Activity of an Antimicrobial Plastic
- Door Handle against Escherichia coli, Methicillin-resistant Staphylococcus aureus (MRSA) and Salmonella typhimurium
- ISO 22196 : 2011
- REPORT NO: IMSL 2016/04/008.3A-1

Unrivalled kill times:

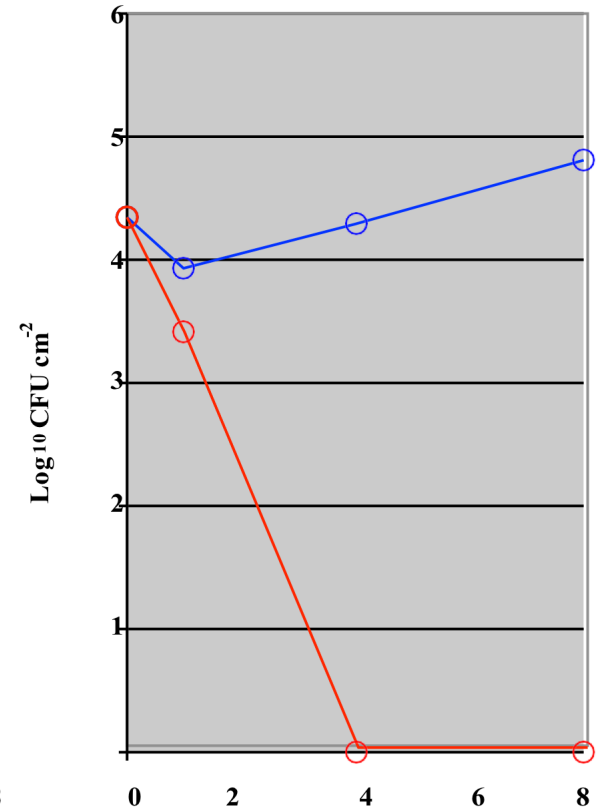
Escherichia coli



MRSA



Salmonella typhimurium



Time (Hours)

—○— Polypropylene —○— Door Handle

Other Features & Benefits:

- Unlike existing handles that are sprayed with antibacterial paints Steri-Core™ handles are manufactured of strong durable nylon with an antimicrobial compound additive.
- Antibacterial ‘to the core’ - scratches and damages to the handles do not compromise their inherent bacteria destroying capabilities.

UK Manufactured

- UK Patented
- EU Design Protected
- Trade marked
- Global patents pending

Steri-Core™

- Cost effective; prices compare with standard ‘painted’ handles.



Benefits are not only to Healthcare Establishments,
but also a much wider spectrum:



- Education Establishments
- Care Homes
- Hotels
- Restaurants
- Offices
- Prisons

Harmful bacteria is not isolated to toilet door handles either:

All door handles harbour dangerous bacteria:

- Office Doors
- Corridor Doors
- Classroom Doors
- Swing Doors

Steri-Core™

The informed choice