



# Solutions



TexQ Quat



TexP Hydrogen Peroxide



BruClean TbC

Texo<sup>TM</sup> Q

# Why Microorganisms Survive in Cleanrooms?

TexQ™ Disinfectant

## Contamination Sources



## PEOPLE.

- The body harbors over thirty million bacteria
- The average person sheds 1,000,000,000 skin cells per day - 10% have micro-organisms on them
- Particles are released from people via the mouth and nose (minute liquid droplets) ~ extremely contaminated with microorganisms.

# Cleanroom Microflora

TexQ™ Disinfectant

## Results

### Sample Types:

Personnel samples: Gram-positive cocci occur most frequently

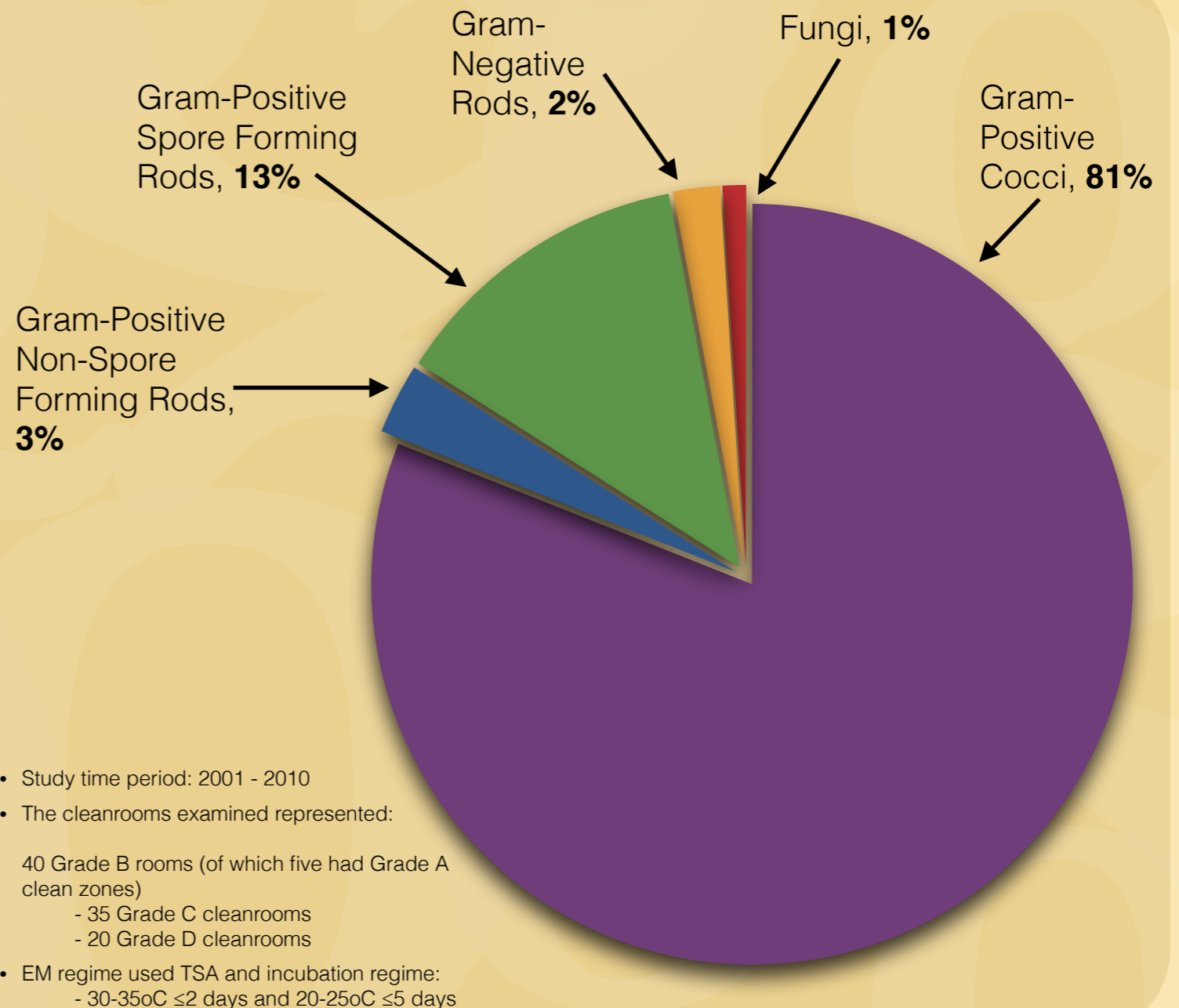
Air samples: Gram-positive cocci occur very frequently (people shedding)

Surfaces: Higher levels of Gram-positive cocci rods (possible equipment transfer link)

Little variation over time

Variation signaled that something had gone wrong, e.g. cleaning techniques, changes to personnel etc

Common fungi in cleanrooms are:  
**Aspergillus, Trychophyton and Penicillium**



# Bacterial Resistance Mechanisms

TexQ™ Disinfectant

**Adaptation  
(mutation)**

**Biofilm  
formation**

**Spore  
formation**

Microorganisms are still an important issue for cleanrooms and other controlled areas.

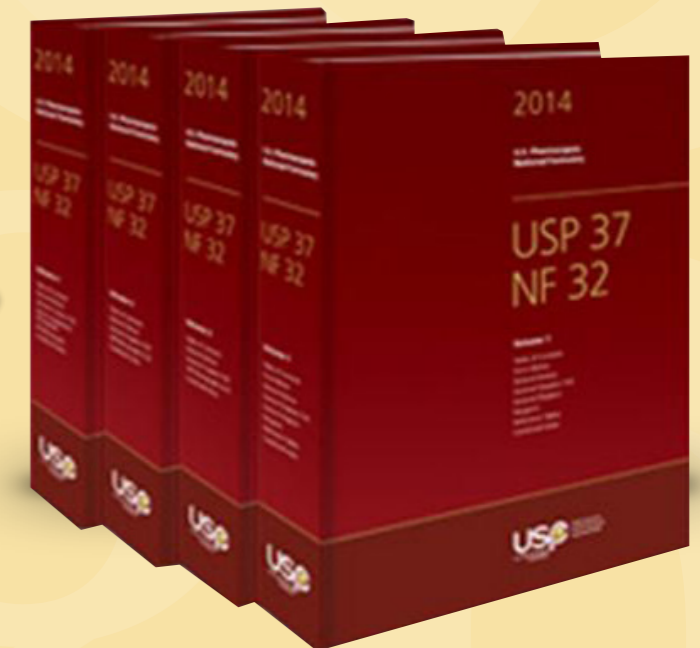
# USP<1072> Rotation Recommendations

TexQ™ Disinfectant

“Because it is theoretically possible that the selective pressure of the continuous use of a single disinfectant could result in the presence of disinfectant-resistant microorganisms in a manufacturing area, **in some quarters the rotation of disinfectants has been advocated.**”

“**The daily application of sporicidal agents is not generally favored** because of their tendency to corrode equipment and because of the potential safety issues with chronic operator exposure.”

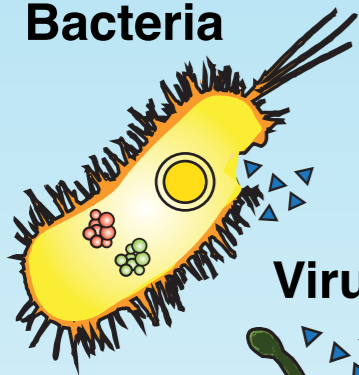
“It is prudent to augment **the daily use of a bactericidal disinfectant with weekly (or monthly) use of a sporicidal agent.**”



# How TexQ disinfectant works

# TexQ™ Disinfectant

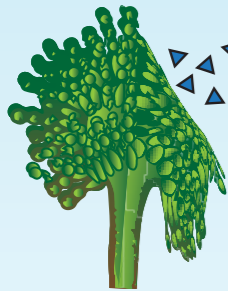
**Bacteria**



**Viruses**



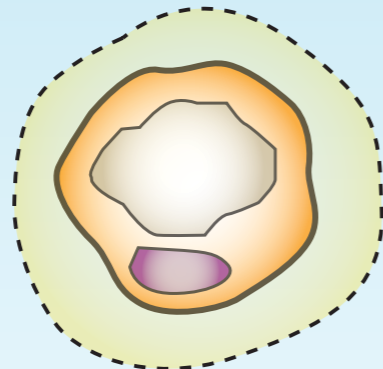
**Fungi**



**TexQ QAC Molecules**

Powerful TexQ QAC molecules disrupt the wall membranes of bacteria, viruses, and fungi.

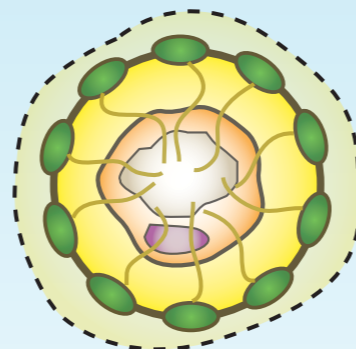
**Fatty Acids**



**TexQ Builder**

Neutralizes fatty acids for incorporation into solution and easy removal.

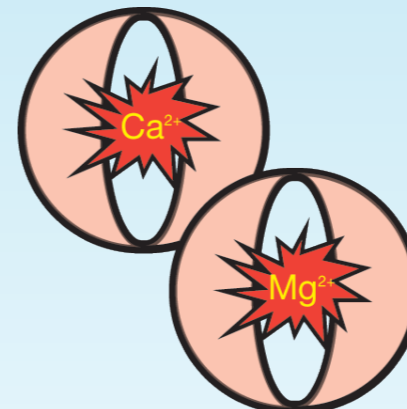
**Organic Contaminants**



**TexQ Surfactant**

Suspends organic contaminants in micelles making them easily removed.

**Metal Ions**

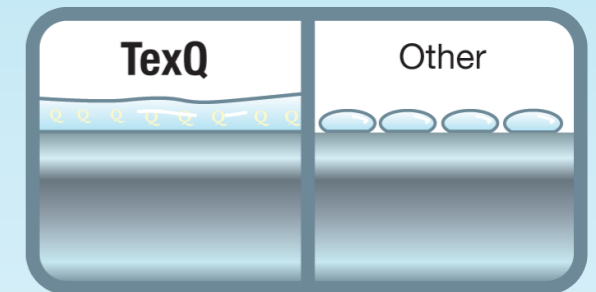


**TexQ Chelating Agents**

Trap metal ions such as calcium and magnesium improving QAC efficiency. Improves product's cleaning properties.

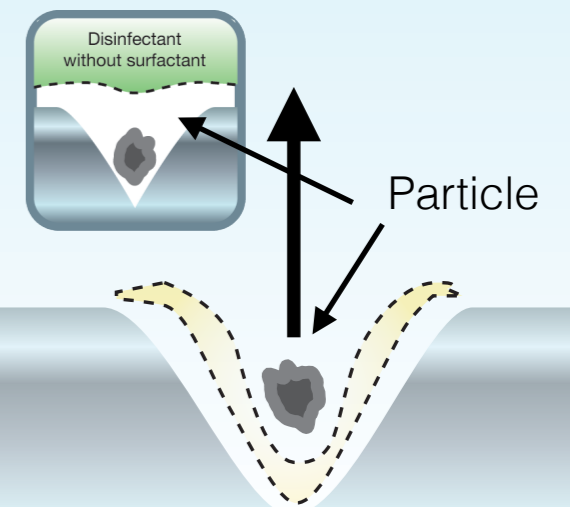
**Uniform Wetting**  
(uniform efficacy)

TexQ Surfactant ensures uniform application to entire surface not irregular droplets which may miss some areas



**Surface Imperfection**

TexQ Surfactant reduces surface tension to wet further into surface imperfections for better contaminant removal and disinfection.



# TexQ Features & Benefits

TexQ™ Disinfectant

TEXQ FEATURES	TEXQ BENEFITS
<b>61 kill claims</b>	<ul style="list-style-type: none"><li>• Proven efficacy against the most common bacteria, viruses and fungi</li></ul>
<b>Compound formula</b>	<ul style="list-style-type: none"><li>• Last generation of quaternary ammonium compounds class</li><li>• Excellent cleaning and disinfecting properties</li><li>• Uniform and complete disinfection of surface</li></ul>
<b>One step disinfectant</b>	<ul style="list-style-type: none"><li>• Cleans and disinfects in one step</li><li>• Saves additional costs for the cleaner</li><li>• Saves time and labor</li><li>• Easy to use</li></ul>
<b>Mold and mildew control</b>	<ul style="list-style-type: none"><li>• TexQ has 4 fungal kill claims including <i>Aspergillus niger</i>, most common issue for the clean areas</li></ul>
<b>Free of dyes and fragrance</b>	<ul style="list-style-type: none"><li>• Safe for the staff (no respiratory irritation)</li><li>• No additional contamination from the vapors</li></ul>
<b>Ready-to-use and concentrate solutions</b>	<ul style="list-style-type: none"><li>• Convenient spray for small areas (equipment, surfaces)</li><li>• Concentrate solution for large area disinfection (floors, walls)</li></ul>
<b>EPA registered</b>	<ul style="list-style-type: none"><li>• Kill claims provide assurance of efficacy of disinfection</li></ul>
<b>Functional use label on bottle</b>	<ul style="list-style-type: none"><li>• Easy document date and operator initials for usage control</li></ul>
<b>Gamma-irradiated</b>	<ul style="list-style-type: none"><li>• Double bagged for easy introduction into aseptic areas</li><li>• Compliance with aseptic environment requirements</li></ul>
<b>Manufactured in USA</b>	<ul style="list-style-type: none"><li>• High quality of raw material ensures high effectiveness and safety of the product</li></ul>



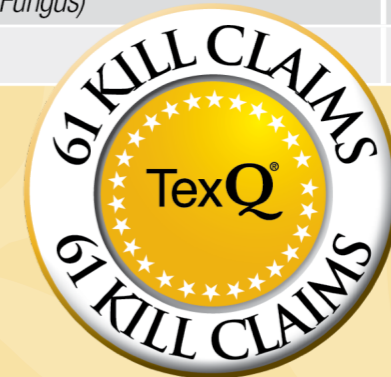
# TexQ Kill Claims

# TexQ™ Disinfectant

PRODUCT NAME	TexQ Disinfectant TX650 / TX651 Contact Time in Minutes*
<b>BACTERIA</b>	
Community Associated Methicillin Resistant Staphylococcus Aureus	10
Methicillin Resistant Staphylococcus Aureus	10
Burkholderia cepacia	10
Campylobacter jejuni	10
Corynebacterium ammoniagenes	10
Enterobacter aerogenes	5
Enterobacter cloacae	10
Enterobacteriaceae w/extended beta lactamase resistance	10
Enterococcus faecalis	10
Enterococcus faecium ( <i>Vancomycin resistant</i> )	10
Escherichia coli	10
Escherichia coli ( <i>Antibiotic resistant</i> )	10
Escherichia coli O157:H7	10
Klebsiella pneumoniae	5
Klebsiella pneumoniae ( <i>Antibiotic resistant</i> )	10
Legionella pneumophila	10
Listeria monocytogenes	10
Proteus mirabilis	10
Proteus vulgaris	10
Pseudomonas aeruginosa	10
Pseudomonas aeruginosa ( <i>Antibiotic resistant</i> )	10
Salmonella enterica	10
Salmonella schottmuelleri	10

PRODUCT NAME	TexQ Disinfectant TX650 / TX651 Contact Time in Minutes*
Salmonella typhi	10
Serratia marcescens	10
Shigella dysenteriae	10
Shigella flexneri	10
Shigella sonnei	10
Staphylococcus aureus	5
Staphylococcus epidermidis ( <i>Antibiotic resistant</i> )	10
Streptococcus pyogenes	10
Vibrio cholerae	10
Xanthomonas axonopodis pv. Citri	10
Xanthomonas campestris pv. Vesicatoria	10
	Total - 34
<b>VIRUSES</b>	
Avian influenza A Virus ( <i>H5N1</i> )	10
Avian Influenza/Turkey/Wisconsin	10
Bovine Viral Diarrheal Virus ( <i>BVDV</i> )	10
Canine Coronavirus	10
Canine Distemper	10
Duck Hepatitis B Virus	10
Hantavirus	10
Hepatitis B virus ( <i>HBV</i> )	10
Hepatitis C virus ( <i>HCV</i> )	10
Herpes Simplex Types 1	10
Herpes Simplex Types 2	10
HIV-1 ( <i>AIDS virus</i> )	2

PRODUCT NAME	TexQ Disinfectant TX650 / TX651 Contact Time in Minutes*
Human Coronavirus	10
Infectious Bovine Rhinotracheitis virus ( <i>IBR</i> )	10
Influenza Type A / Brazil	10
Influenza A H1N1 Virus	10
Newcastle Disease virus	10
Porcine Respiratory & Reproductive Syndrome Virus ( <i>PRRSV</i> )	10
Porcine Rotavirus	10
Pseudorabies virus ( <i>Rabies Virus</i> )	10
Respiratory Syncytial ( <i>RSV</i> )	10
Transmissible Gastroenteritis ( <i>TGE</i> )	10
Vaccinia virus ( <i>Pox Virus</i> )	10
	Total - 23
<b>FUNGI</b>	
Aspergillus niger	10
Candida albicans	10
Dactylium dendroides	10
Trichophyton mentagrophytes ( <i>Athlete's Foot Fungus</i> )	10
	Total - 4



# Disinfectant Comparison

# TexQ™ Disinfectant

DISINFECTANT CLASSES				
	TexQ	Bleach	Phenolics	Ethanol/Isopropranol
Effective pH	8-11	10-13	1.5-12.5	6-8
Cleaning	good	poor	fair*	poor
Need precleaning step	no	yes	no*	no
Odor	low	high	high	high
Effectiveness affected by pH	no	yes	yes	no
Organic soil tolerance	good	poor	good*	medium
Hard water tolerance	good	good	good	good
Surface compatibility	high	medium	medium	high
Corrosiveness	low	high	medium	low
Toxicity**	III	I	I or II	IV
Skin irritation	low	high	medium	low
Respiratory irritation	no	high	high	high
Residual activity	yes	no	yes	no
Need rinse	yes	yes	yes	no
Stability/shelf life	very good	very poor	good	good
Cost in use	low	low	medium	high

\*Depends on product

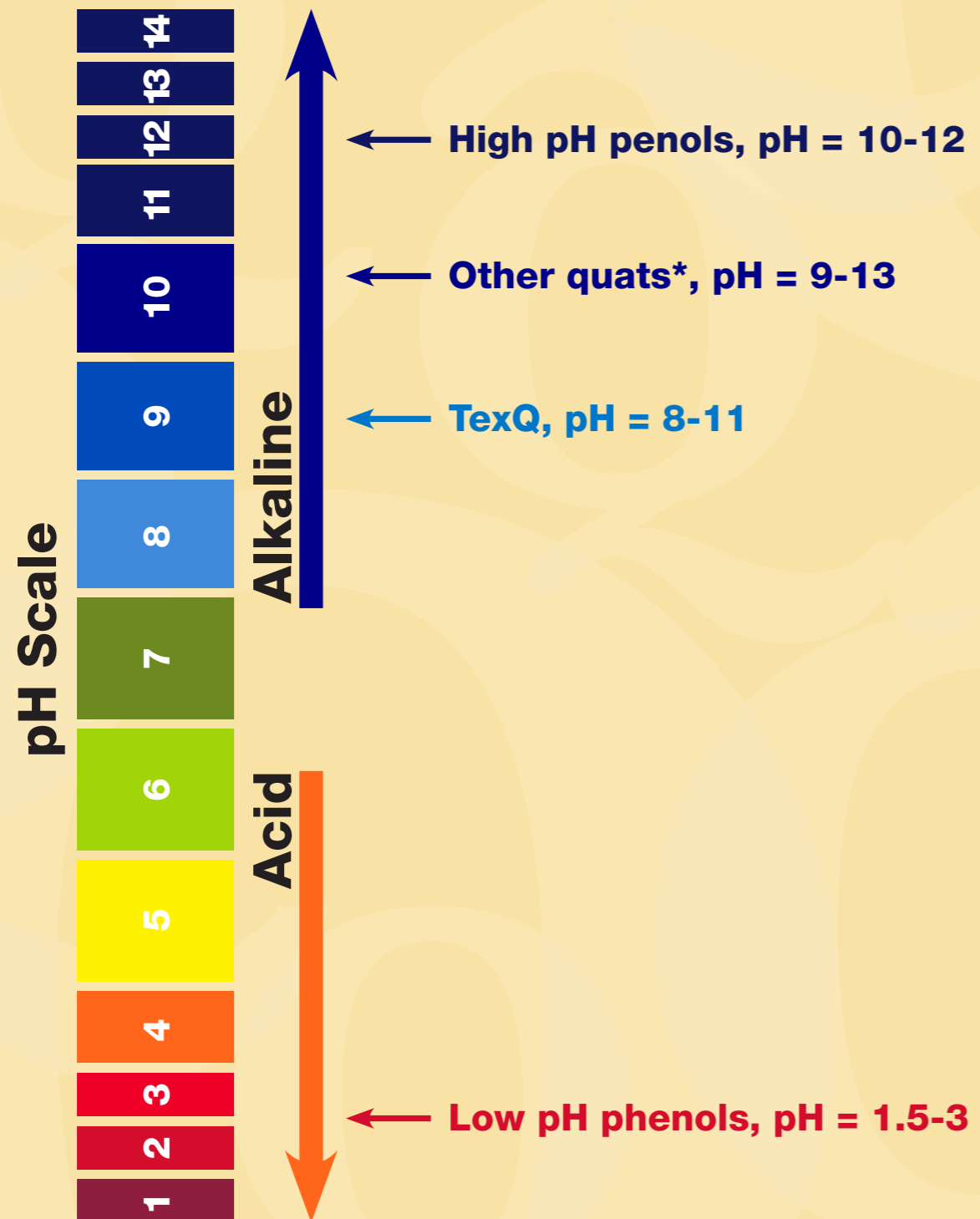
### \*\*EPA Toxicity Categories Require These Warnings:

Signal Word	Category	Oral Lethal Dose
DANGER, POISON (Skull and crossbones)	I Highly toxic	A few drops to a teaspoonful
WARNING	II Moderately toxic	Over a teaspoonful to one ounce
CAUTION	III Slightly toxic	Over one ounce to one pint
CAUTION	IV Relatively non-toxic	Over one pint to one pound

*Based on a 150-pound person*

# Disinfectants and pH

# TexQ™ Disinfectant



Each whole pH value below 7 is ten times more acidic than the next higher value. For example, pH 4 is ten times more acidic than pH 5 and is 100 times (10 times 10) more acidic than pH 6.

Acidic and basic solutions are more aggressive to susceptible surfaces and more hazardous to humans than neutral solutions.

\*depending on formulation

# TexQ Products

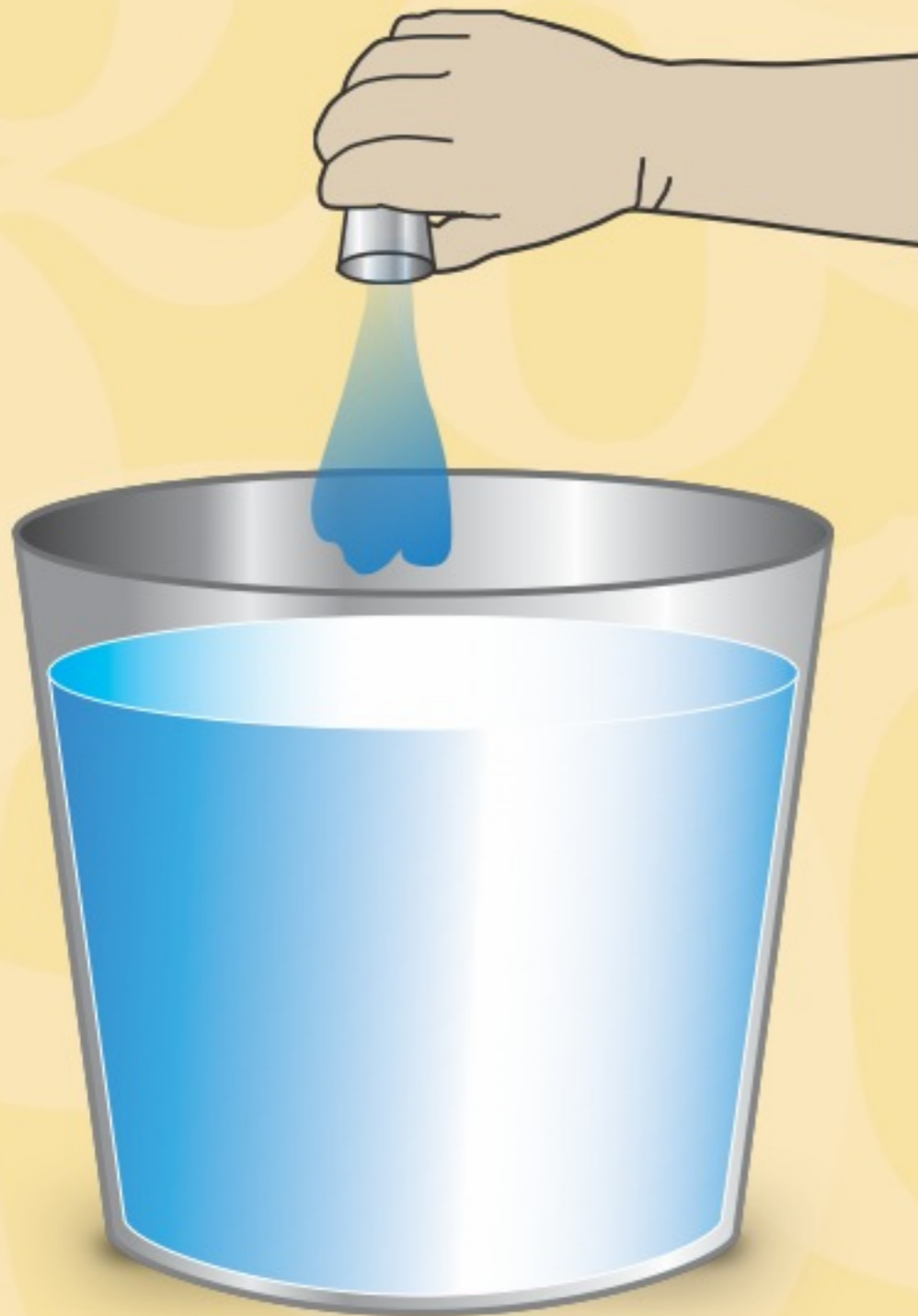
# TexQ™ Disinfectant

Part Number	Description	Packaging
<b>TX650</b>	TexQ 22 oz. Ready-to-use trigger spray	12 bottles/case
<b>TX650M</b>	TexQ 22 oz. Ready-to-use trigger spray	4 bottles/case
<b>TX651</b>	TexQ 1 gallon Concentrate	4 bottles/case



# It's simple to mix!

TexQ™ Disinfectant



An easy, simple and powerful disinfectant solution.

**Step 1:** Add 1 gallon of water.

**Step 2:** Add 2 ounces of TexQ TX651 from concentrate.

**Step 3: Your disinfectant solution is ready!**

# TexP Hydrogen Peroxide






# TexP Hydrogen Peroxide

## Features & Benefits



Features	Benefits
<b>RTU Formulations</b>	<ul style="list-style-type: none"><li>• No mixing or activation required, easy to use</li><li>• Low toxicity profile</li><li>• Safe for the operation</li></ul>
<b>Completely biodegradable, decomposing into water and oxygen</b>	<ul style="list-style-type: none"><li>• No residue, no rinse needed</li><li>• Safe for most surfaces</li></ul>
<b>Nonflammable</b>	<ul style="list-style-type: none"><li>• May be used in high flammability risk environments</li></ul>
<b>No Volatile Organic Carbon (VOC) Compounds</b>	<ul style="list-style-type: none"><li>• May be used to reduce VOC regulatory concerns and assist in compliance</li><li>• No respiratory irritation</li></ul>
<b>Manufactured in the USA</b>	<ul style="list-style-type: none"><li>• High quality raw materials ensures product safety</li></ul>

# Rotation Recommendations

Microbe to be killed	Products	How Often to Use	Remove Disinfectant Residues
<ul style="list-style-type: none"> <li>• Vegetative Bacteria</li> <li>• Fungal spores, vegetative molds and yeasts</li> <li>• Lipid-coated viruses</li> <li>• Non lipid-coated viruses</li> <li>• Mycobacteria</li> </ul>	<p><b>Bactericidal Products</b></p> <p>Use:</p> <ul style="list-style-type: none"> <li>- Quaternary Ammonium Compounds (QAC)</li> <li>- Phenols</li> <li>- Bleach at &lt;5,000ppm</li> </ul> 	<p>Use daily</p>	 <p><b>TexP</b> hydrogen peroxide solution</p>
<ul style="list-style-type: none"> <li>• Bacterial Spores</li> </ul>	<p><b>Sporicidal Products</b></p> <p>Use:</p> <ul style="list-style-type: none"> <li>- Hydrogen peroxide</li> <li>- Hydrogen peroxide / peracetic acid</li> <li>- Bleach at &gt;5,000pm</li> </ul>	<p>Use once a week, once every 2 weeks or once every 3 weeks depending on cleanroom conditions</p>	 <p><b>IPA</b> 70% sterile or non-sterile</p>

\* Review product label for specific kill claims



# Cleaning & Disinfection



## Common Steps



- 1** **Cleaning**  
+ Apply a cleaning solution
- 2** **Disinfection**  
+ Apply a disinfectant
- 3** **Residue Removal**  
Remove residue





## Texwipe Steps



- 1**  **Cleaning & Disinfection**  
Apply TexQ One-Step Disinfectant
- 2**  **Residue Removal**  
Remove residue with Sterile 70% IPA or Hydrogen Peroxide Solution with a dry wipe, or pre-wetted 70% IPA wipe

# TexP Hydrogen Peroxide Product Selection



Solution	Description	Part No.
4% hydrogen peroxide	4% hydrogen peroxide RTU solution, 16 oz spray bottle	 <b>TX684</b>
	4% hydrogen peroxide RTU solution, 1 gallon bottle	 <b>TX684G</b>
7.5% hydrogen peroxide	7.5% hydrogen peroxide RTU solution, 16 oz spray bottle	 <b>TX687</b>
	7.5% hydrogen peroxide RTU solution, 1 gallon bottle	 <b>TX687G</b>

# Bru-Clean TbC

The Bleach  
Alternative

TX6466



# Bru-Clean TbC

## The Bleach Alternative



Features	Benefits
Convenient premeasured tablets	<ul style="list-style-type: none"> <li>▪ Easy to use</li> <li>▪ Easy to store</li> <li>▪ 270 tablets make 270 gallons of disinfectant</li> </ul>
Solution prepared at point-of-use	<ul style="list-style-type: none"> <li>▪ Easily prepare a <u>fresh</u> solution whenever needed</li> <li>▪ Consistent concentration of daily prepared solution</li> <li>▪ Less odor than bleach</li> </ul>
Neutral pH	<ul style="list-style-type: none"> <li>▪ Much less corrosive to metals than liquid bleach</li> <li>▪ Less hazardous for users</li> </ul>
Shelf life/stability of tablets	<ul style="list-style-type: none"> <li>▪ Two years of active ingredient stable concentration in the tablet</li> </ul>
EPA registered disinfectant	<ul style="list-style-type: none"> <li>▪ Registered kill claims provide the assurance of efficacy of disinfection for 32 microbes</li> </ul>
Functional use label on bottle	<ul style="list-style-type: none"> <li>▪ Easily document the date opened and operator initials for usage control</li> </ul>

# Bru-Clean Comparison versus Bleach



	Bleach	Bru-Clean (TX6466)
Effective pH	10 - 13	5 - 6
Packaging & Delivery	Concentrated solution	Bulk packed tablets
Use convenience	Must be stored, diluted, mixed, and filtered	Made at point-of-use
Stability	Degrades over time (lose 20% in 6 months)*	Stable, fresh solution
Shelf Life	One year	Tablet shelf life of two years
Odor	Strong	Moderate
Corrosion potential	High	Low
Hazard level: Eye	High (Severe irritant or may cause damage)	Low Irritant
Skin	High (Severe irritant or may cause damage)	Low Irritant
Respiratory system	High (Severe irritant or may cause damage)	Irritant
DOT Hazard Classification	Corrosive, Class 8 at 12% strength	Not classified as hazardous
Working concentration	2,500 – 5,000 ppm	937 ppm

\* The bleach solution concentration must be confirmed before the usage.

# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

### SCOPE:

Compare the corrosion caused by bleach and Bru-Clean (TX6466) solutions to 304L and 316 stainless steel coupons at use concentrations.

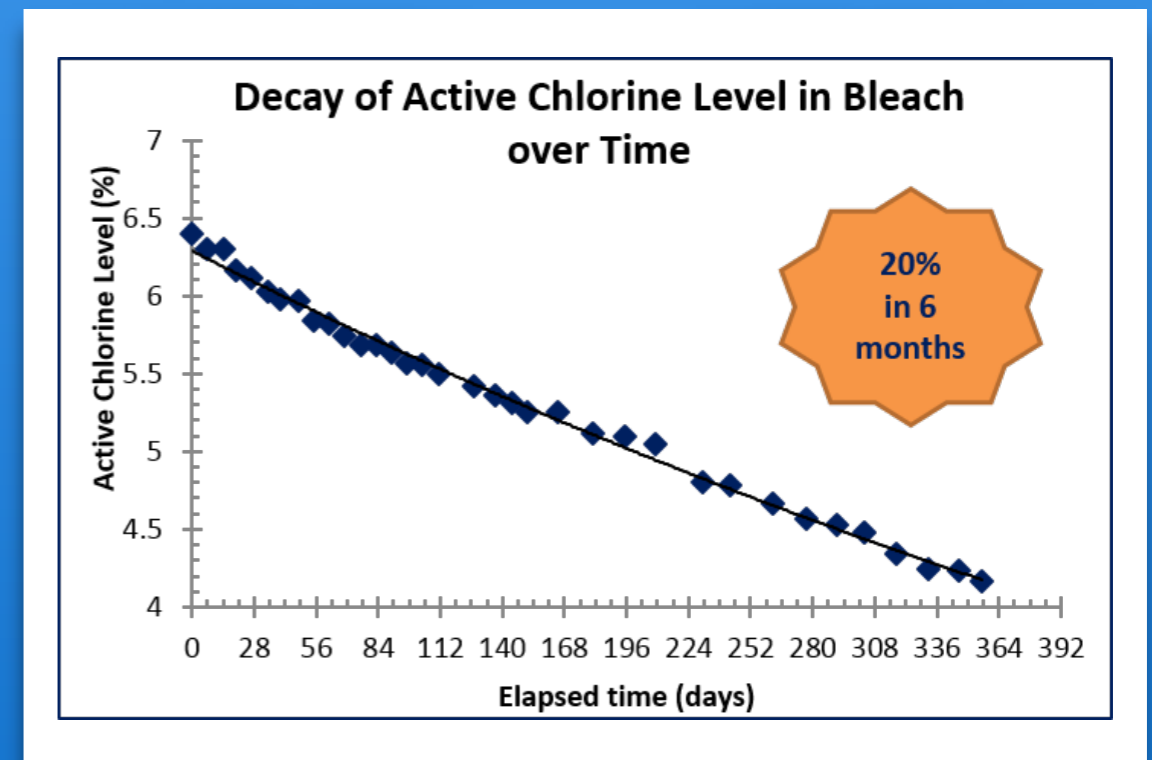
### MATERIALS USED:

- 304L and 316 stainless steel coupons
- 304L often used in welded joints, less expensive
- 316 has higher corrosion resistance than 304L

### SOLUTIONS USED:

- Deionized Water
- Clorox bleach full strength 50,000 ppm
- Clorox bleach (diluted 1:10) 5,000 ppm (common)
- Clorox bleach (diluted 1:50) 1,000 ppm
- Bru-Clean (TX6466) 1000 ppm (1 tablet in 1 gallon)
- Bru-Clean (TX6466) 200 ppm

**EXPOSURE TIME:** 3 months



# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

Conclusions:

- 304L and 316 stainless steel coupons exposed to bleach diluted to 1,000 or 5,000 ppm concentration showed corrosion
- Coupons exposed to Bru-Clean (TX6466) solutions (200 and 1000 ppm) did not show corrosion



# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study



Coupons exposed to typical use concentrations after 3 months



# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study



Coupons exposed to typical use concentrations after 3 months

# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

Coupons exposed to typical use concentrations after 3 months



### 304L Stainless Steel



**Bleach 1:10  
5000 ppm**



**Bru-Clean  
1000 ppm**

# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

Coupons exposed to typical use concentrations after 3 months



### 316 Stainless Steel



**Bleach 1:10  
5000 ppm**



**Bru-Clean  
1000 ppm**

# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

Coupons exposed to similar active chlorine concentrations after 3 months



# Bru-Clean Corrosiveness versus Bleach



## Corrosiveness Comparison Study

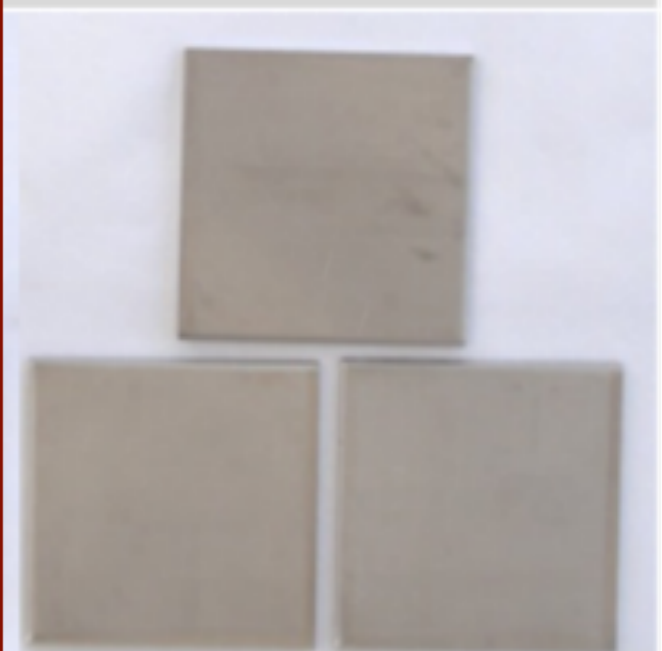
Coupons exposed to similar active chlorine concentrations after 3 months



### 316 Stainless Steel



**Bleach 1:50  
1000 ppm**



**Bru-Clean  
1000 ppm**

# Bru-Clean Kill Claims

Use concentration of 1 tablet per gallon



	Contact time (minutes)		Contact time (minutes)
<b>Bacteria</b>		<b>Virus</b>	
Actinobacillus pleuropneumoniae	10	Adenovirus Type 2	
Bordetella bronchiseptica	10	Avian Influenza Type A	10
Brachyspira (Treponema/ Serpuline) hyodysenteriae	10	Canine distemper virus	10
Clostridium perfringes USDA	10	Canine Parvovirus	10
Enterococcus faecalis Vancomycin Resistant	10	Feline calicivirus	10
Escherichia coli O157:H7	10	Hepatitis A virus (HAV)	10
Gumboro disease	10	Herpes Simplex Type 1	10
Klebsiella pneumoniae	10	HIV-1 (AIDS virus)	10
Mycobacterium tuberculosis var. bovis?	10	Infectious canine hepatitis	10
Pseudomonas aeruginosa	10	Newcastle disease virus	10
Salmonella enterica	10	Norovirus	10
Staphylococcus aureus	10	Poliovirus type 1	10
Staphylococcus aureus (MRSA)	10	Porcine parvovirus	10
Staphylococcus aureus (GRSA)	10	Pseudorabies	10
Staphylococcus epidermidis	10	Runting & Stunging virus (tenosynovitis)	10
Streptococcus dysgalactiae	10	<b>Fungus</b>	
Trichophyton mentagrophytes	10	Trichophyton mentagrophytes	10

**Total: 32**

# It's simple to mix!

**Texwipe**<sup>®</sup>  
An **TW** Company



An easy, simple and powerful disinfectant solution.

**Step 1:** Add 1 gallon of water.

**Step 2:** Add one tablet then wait 2 - 3 minutes while it fizzes and dissolves.

**Step 3:** Your disinfectant solution is ready!

