



**EFFICACY DATA for**  
**Product Central 105: Sanitizer (BTC<sup>®</sup> 2125M 10% Solution)**  
**EPA Reg. No. 1839-86-1674**

**VIRUCIDAL DATA:**

**Test Methods:**

- Protocols for Testing the Efficacy of Disinfectants against Hepatitis B Virus (HBV) (EPA, Federal Register, Vol. 65, No. 166, 8/25/2000, p. 51828).
- ‡ Protocol for Testing Disinfectants against Hepatitis C Virus using Bovine Viral Diarrhea Virus as approved by the U.S. EPA on August 15, 2002.
- \* U.S. E.P.A. Pesticide Assessment Guidelines, Subdivision G: Product Performance, 1982, Section 91-30, pp. 72-76.
- † Virucide Assay (EPA, Federal Register 10, No. 123, 6/25/75, p. 26836)

**Test Conditions:** 3.5 ounces/5 gallons dilution, 10 minute contact time, glass petri dish substrates, 18.5-25°C exposure temperature, tested in the presence of serum

**Results:**

<u>Test Organism</u>	<u>Sample</u>		<u>Titer Reduction</u>	
†Adenovirus Type 5	A	B	≥3.0 log <sub>10</sub>	≥3.3 log <sub>10</sub>
*Avian Influenza A/Turkey/Wisconsin (ATCC VR-798)	A	B	≥5.5 log <sub>10</sub>	≥5.5 log <sub>10</sub>
‡Bovine Viral Diarrhea Virus (BVDV)	A	B	5.93 log <sub>10</sub>	5.93 log <sub>10</sub>
•Hepatitis B Virus (HBV) (Duck Hepatitis B Virus-DHBV)	A	B	4.68 log <sub>10</sub>	4.68 log <sub>10</sub>
‡Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus-BVDV)	A	B	5.93 log <sub>10</sub>	5.93 log <sub>10</sub>
†Herpes Simplex Type 1 (Sabin)	A	B	4.0 log <sub>10</sub>	4.0 log <sub>10</sub>
*Human Coronavirus (ATCC VR-740, strain 229E)	A	B	≥4.25 log <sub>10</sub>	≥4.25 log <sub>10</sub>
*Human Immunodeficiency Virus, HIV-1, strain HTLV-III <sub>B</sub> , (associated with AIDS)	A	B	≥3.5 log <sub>10</sub>	≥3.5 log <sub>10</sub>
†Influenza A <sub>2</sub> (Japan 305/57)	A	B	7.5 log <sub>10</sub>	7.5 log <sub>10</sub>
*Laryngotracheitis (LT-IVAX)	A	B	4.75 log <sub>10</sub>	≥4.75 log <sub>10</sub>
*Newcastle Disease Virus (strain H.J. Roakin, 1946)	A	B	≥5.5 log <sub>10</sub>	≥5.5 log <sub>10</sub>
*SARS associated Coronavirus (ZeptoMetrix)	A	B	4.03 log <sub>10</sub>	4.03 log <sub>10</sub>
†Vaccinia (Wyeth)	A	B	3.5 log <sub>10</sub>	3.5 log <sub>10</sub>

**Conclusion:** Under the conditions of this investigation, BTC<sup>®</sup> 2125M 10% Solution was **virucidal** for Adenovirus Type 5, Avian Influenza A/Turkey/Wisconsin, Bovine Viral Diarrhea Virus (BVDV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Type 1 (Sabin), Human Coronavirus, Human Immunodeficiency Virus (HIV-1), Influenza A<sub>2</sub> (Japan 305/57), Laryngotracheitis, Newcastle Disease Virus, SARS associated Coronavirus and Vaccinia (Wyeth)<sup>2</sup> according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

**SANITIZATION DATA:**

**Test Method:** AOAC Germicidal and Detergent Sanitizing Action of Disinfectants  
**Test Conditions:** synthetic hard water as **650 ppm** hardness (as CaCO<sub>3</sub>)  
**200 ppm active quaternary** (public eating establishments and dairies)  
**200-400 ppm active quaternary** (food processing equipment/utensils)  
 1-2 ounces/4 gallon dilution

**Results:**

Organism	Sample	TOTAL BACTERIAL COUNTS/ % KILL vs. EXPOSURE TIME				
		30 seconds		60 seconds		Initial Inoculum
		TBC*	% Kill†	TBC*	% Kill†	Control Count
<i>Staphylococcus aureus</i> (ATCC 6538)	A	970	99.999	105	99.999	7.8 x 10 <sup>7</sup>
	B	1285	99.999	205	99.999	9.2 x 10 <sup>7</sup>
	C	1145	99.999	130	99.999	9.3 x 10 <sup>7</sup>
<i>Escherichia coli</i> (ATCC 11229)	A	1125	99.999	50	99.999	1.0 x 10 <sup>8</sup>
	B	1075	99.999	95	99.999	9.3 x 10 <sup>7</sup>
	C	835	99.999	75	99.999	8.1 x 10 <sup>7</sup>
<i>Campylobacter jejuni</i> (ATCC 29428)	A	790	99.999	410	99.999	8.6 x 10 <sup>7</sup>
	B	780	99.999	470	99.999	8.6 x 10 <sup>7</sup>
<i>Escherichia coli</i> O157:H7 (ATCC 43895)	A	1220	99.999	110	99.999	9.2 x 10 <sup>7</sup>
	B	1000	99.999	125	99.999	9.2 x 10 <sup>7</sup>
<i>Listeria monocytogenes</i> (ATCC 35152)	A	<10	>99.999	<10	>99.999	7.8 x 10 <sup>8</sup>
	B	<10	>99.999	<10	>99.999	7.8 x 10 <sup>8</sup>
Methicillin resistant <i>Staphylococcus aureus</i> (ATCC 33592)	A	950	99.999	<10	>99.999	1.0 x 10 <sup>8</sup>
	B	970	99.999	<10	>99.999	1.0 x 10 <sup>8</sup>
<i>Salmonella typhi</i> (ATCC 6539)	A	<10	>99.999	<10	>99.999	1.4 x 10 <sup>8</sup>
	B	<10	>99.999	<10	>99.999	1.4 x 10 <sup>8</sup>
<i>Shigella sonnei</i> (ATCC 11060)	A	680	99.999	<10	>99.999	9.3 x 10 <sup>7</sup>
	B	4500	99.999	<10	>99.999	9.3 x 10 <sup>7</sup>
Vancomycin resistant <i>Enterococcus faecalis</i> (ATCC 51299)	A	<10	>99.999	<10	>99.999	1.2 x 10 <sup>8</sup>
	B	<10	>99.999	<10	>99.999	1.2 x 10 <sup>8</sup>
<i>Vibrio cholera</i> (ATCC 14035)	A	<10	>99.999	<10	>99.999	8.3 x 10 <sup>7</sup>
	B	<10	>99.999	<10	>99.999	8.3 x 10 <sup>7</sup>
<i>Yersinia enterocolitica</i> (ATCC 23715)	A	108	99.999	<10	>99.999	1.7 x 10 <sup>8</sup>
	B	1300	99.999	263	99.999	5.9 x 10 <sup>8</sup>

\*TBC = Total Bacterial Count, organisms/ml

† = % Kill calculation based on Initial Inoculum Control Count.

**Conclusion:** Under the conditions of these investigations, BTC® 2125M 10% Solution demonstrated **sani-tizing** activity against *Staphylococcus aureus*, *Escherichia coli*, *Campylobacter jejuni*, *Escherichia coli* O157:H7, *Listeria monocytogenes*, Methicillin resistant *Staphylococcus aureus*, *Salmonella typhi*, *Shigella sonnei*, Vancomycin resistant *Enterococcus faecalis*, *Vibrio cholera* and *Yersinia enterocolitica* according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a sanitizer.

**SANITIZATION DATA (continued):**

**Test Method:** AOAC Germicidal and Detergent Sanitizing Action of Disinfectants  
**Test Conditions:** synthetic hard water as **650 ppm** hardness (as CaCO<sub>3</sub>)  
**300-400 ppm active quaternary** (food processing equipment/utensils ONLY)  
 1.5-2.0 ounces/4 gallon dilution

**Results:**

Organism	Sample	TOTAL BACTERIAL COUNTS/ % KILL vs. EXPOSURE TIME				Initial Inoculum	
		30 seconds		60 seconds		% Kill†	Control Count
		TBC*	% Kill†	TBC*	% Kill†		
<i>Klebsiella pneumoniae</i> (ATCC 4352)	A	100	99.999	<10	>99.999	9.4 x 10 <sup>8</sup>	
	B	310	99.999	<10	>99.999	9.4 x 10 <sup>8</sup>	

\*TBC = Total Bacterial Count, organisms/ml  
 † = % Kill calculation based on Initial Inoculum Control Count.

**Conclusion:** Under the conditions of these investigations, BTC® 2125M 10% Solution demonstrated **sani-tizing** activity against *Klebsiella pneumonia* at 300 ppm quaternary concentration and 650 ppm water hardness according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a sanitizer.

**Test Method:** AOAC Germicidal and Detergent Sanitizing Action of Disinfectants  
**Test Conditions:** synthetic hard water as **500 ppm** hardness (as CaCO<sub>3</sub>)  
**200 ppm active quaternary** (public eating establishments, dairies, and food processing equipment/utensils)  
 1 ounce/4 gallon dilution

**Results:**

Organism	Sample	TOTAL BACTERIAL COUNTS/ % KILL vs. EXPOSURE TIME				Initial Inoculum	
		30 seconds		60 seconds		% Kill†	Control Count
		TBC*	% Kill†	TBC*	% Kill†		
<i>Klebsiella pneumoniae</i> (ATCC 4352)	A	340	99.999	<10	>99.999	1.1 x 10 <sup>8</sup>	
	B	190	99.999	<10	>99.999	1.1 x 10 <sup>8</sup>	

\*TBC = Total Bacterial Count, organisms/ml  
 † = % Kill calculation based on Initial Inoculum Control Count.

**Conclusion:** Under the conditions of these investigations, BTC® 2125M 10% Solution demonstrated **sanitizing** activity against *Klebsiella pneumoniae* at 200 ppm quaternary concentration and 500 ppm water hardness according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a sanitizer.

**DISINFECTION DATA:**

**Test Method:** AOAC Use Dilution

**Test Conditions:** 5% organic soil load, 10 minute contact time, stainless steel carrier substrates  
 20°C exposure temperature

**Results:**

<u>Test Organism</u>	<u>Dilution</u>	<u>Sample</u>	<u>Number of Carriers</u>	
			<u>Exposed</u>	<u>Positive</u>
<i>Staphylococcus aureus</i> (ATCC 6538)	3 ounces/5 gallons	A	60	0
		B	60	0
<i>Salmonella enterica</i> (ATCC 10708)	3 ounces/5 gallons	A	60	0
		B	60	0
<i>Listeria monocytogenes</i> (ATCC 35152)	3 ounces/5 gallons	A	10	0
		B	10	0
<i>Yersinia enterocolitica</i> (ATCC 23715)	3 ounces/5 gallons	A	10	0
		B	10	0
<i>Pseudomonas aeruginosa</i> (ATCC 15442)	3.5 ounces/5 gallons	A	60	0
		B	60	0
<i>Staphylococcus aureus</i> (Vancomycin intermediate resistant) (VISA) (HIP-5836)	3.5 ounces/5 gallons	A	10	0
		B	10	0
<i>Xanthomonas axonopodis</i> (pathovar <i>citri</i> ) (Citrus Canker) (USDA Permit No. 46190)	2.67 ounces/1 gallon	A	10	0
		B	10	0

**Conclusion:**

Under the conditions of these investigations, BTC® 2125M 10% Solution demonstrated **disinfectant** activity against *Staphylococcus aureus*, *Salmonella enterica*, *Listeria monocytogenes*, *Yersinia enterocolitica*, *Pseudo-monas aeruginosa*, *Staphylococcus aureus* (Vancomycin intermediate resistant) (VISA), and *Xanthomonas axonopodis* pathovar *citri* (citrus canker) according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.