

Test Report**No: GZCPC190702197E.3****Date: 2019-08-22**

Client name: Heart Work health technology Co.,Ltd.
Client address: 159 Keji road, Xinmenlou Village, Dong Keng Town, Dong Guan City, Guang Dong, China

Sample name: Nano Hydroxide ion solution
Batch No./Date: /
Manufacturer: /

Above sample(s) was/were submitted and certified by the client, SGS quoted the information with no responsibility as to the accuracy, adequacy and/or completeness.

SGS job No.: GZCPC190702197
Date of receipt: 2019-05-30
Testing period: 2019-05-30~2019-08-21

TEST(S) REQUESTED:

Selected test(s) as requested by applicant:
Please refer to next page(s).

TEST METHOD(S):

Please refer to next page(s).

TEST RESULT(S):

Please refer to next page(s).

This test report has been drafted in Chinese and maybe translated into other languages, The Chinese version shall prevail.

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Signed for and on behalf of SGS



Authorized Signature

Denny Li

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

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RAND: 13651116



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TEST METHOD(S):

Technical Standard for Disinfection (2002 Ministry of Health P.R.China)-2.1.1.5.5 Quantitative determination of neutralizer suspension
 Technical Standard for Disinfection (2002 Ministry of Health P.R.China)-2.1.1.7 Bacteria quantitative sterilization test, 2.1.1.7.4 Operation procedure of Quantitative suspension test

TEST ORGANISM(S):

Escherichia coli 8099, *Pseudomonas aeruginosa* ATCC 15442, *Salmonella aertrycke* NICPBP 50115, *Klebsiella pneumoniae* ATCC 4352, *Porphyromonas gingivalis* ATCC 33277, *Legionella pneumophila* ATCC 33152

TEST RESULT(S):

Bactericidal activity test for the submitted sample(s)*

1) Neutralizer efficacy test

Test Method: Technical Standard for Disinfection (2002 Ministry of Health P.R.China)-2.1.1.5.5 Quantitative determination of neutralizer suspension

Neutralizer: A solution containing 3% Tween -80、0.5% sodium thiosulfate、0.5%L- histidine、0.5% peptone、0.85% sodium chloride、1.43% lecithin and 0.1% cysteine.

Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)		
			Test 1	Test 2	Test 3
50% 30s	<i>Escherichia coli</i> ATCC 8099	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	2.2×10 ²	2.4×10 ²	1.5×10 ²
		The 3 rd groups Neutralizer+ Bacterial suspension	4.0×10 ⁷	3.8×10 ⁷	3.6×10 ⁷
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	3.6×10 ⁷	3.4×10 ⁷	3.3×10 ⁷
		The 5 th groups Diluent solution + Bacterial suspension	3.8×10 ⁷	4.0×10 ⁷	3.6×10 ⁷
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth		
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 3.51%, 6.31%, 3.81% respectively.			
Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.					



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Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)		
			Test 1	Test 2	Test 3
50% 60s	<i>Salmonella aertrycke</i> NICBPB 50115	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	60	70	50
		The 3 rd groups Neutralizer+ Bacterial suspension	3.8×10 ⁷	4.2×10 ⁷	3.8×10 ⁷
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	3.6×10 ⁷	3.8×10 ⁷	3.5×10 ⁷
		The 5 th groups Diluent solution + Bacterial suspension	3.9×10 ⁷	4.1×10 ⁷	4.0×10 ⁷
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth		
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 2.63 %, 4.17%, 4.39% respectively.			
		Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.			

Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)		
			Test 1	Test 2	Test 3
50% 60s	<i>Klebsiella pneumoniae</i> ATCC 4352	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	60	80	70
		The 3 rd groups Neutralizer+ Bacterial suspension	3.4×10 ⁷	3.8×10 ⁷	3.3×10 ⁷
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	3.2×10 ⁷	3.5×10 ⁷	3.1×10 ⁷
		The 5 th groups Diluent solution + Bacterial suspension	3.5×10 ⁷	3.7×10 ⁷	3.6×10 ⁷
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth		
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 2.94 %, 2.70%, 5.05% respectively.			
		Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.			



Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)		
			Test 1	Test 2	Test 3
50% 30s	<i>Porphyromonas gingivalis</i> ATCC 33277	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	90	60	75
		The 3 rd groups Neutralizer+ Bacterial suspension	3.7×10 ⁷	3.3×10 ⁷	3.6×10 ⁷
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	3.3×10 ⁷	3.2×10 ⁷	3.3×10 ⁷
		The 5 th groups Diluent solution + Bacterial suspension	3.7×10 ⁷	3.5×10 ⁷	3.6×10 ⁷
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth		
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 4.63 %, 3.03%, 3.81% respectively.			
		Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.			

Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)		
			Test 1	Test 2	Test 3
50% 30s	<i>Legionella pneumophila</i> ATCC 33152	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	70	50	55
		The 3 rd groups Neutralizer+ Bacterial suspension	4.2×10 ⁷	3.7×10 ⁷	4.2×10 ⁷
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	3.8×10 ⁷	3.2×10 ⁷	3.3×10 ⁷
		The 5 th groups Diluent solution + Bacterial suspension	4.0×10 ⁷	3.6×10 ⁷	4.1×10 ⁷
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth		
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 3.33 %, 5.71%, 9.40% respectively.			
		Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.			



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Action concentration and action time	Test strain	Group	Count of viable colonies in each test (cfu/mL)				
			Test 1	Test 2	Test 3		
50% 30s	<i>Pseudomonas aeruginosa</i> ATCC 15442	The 1 st groups: Disinfectant + Bacterial suspension	<10	<10	<10		
		The 2 nd groups (Disinfectant + Bacterial suspension)+ Neutralizer	65	50	70		
		The 3 rd groups Neutralizer+ Bacterial suspension	4.6×10 ⁷	4.0×10 ⁷	4.2×10 ⁷		
		The 4 th groups (Disinfectant+ Neutralizer)+ Bacterial fluid	4.0×10 ⁷	3.3×10 ⁷	3.5×10 ⁷		
		The 5 th groups Diluent solution + Bacterial suspension	4.4×10 ⁷	4.0×10 ⁷	4.0×10 ⁷		
		The 6 th groups Diluent solution+ Neutralizer + Medium	Aseptic growth				
		The error rate of 3 times repeated test on 3 rd , 4 th and 5 th group was 5.43 %, 7.89%, 6.84% respectively.					
		Conclusion: All of test results can meet the standards and the neutralizer being tested was qualified.					

2) Bactericidal activity test

Test Method: Technical Standard for Disinfection (2002 Ministry of Health P.R.China)-2.1.1.7 Bacteria quantitative sterilization test, 2.1.1.7.4 Operation procedure of Quantitative suspension test

Test organisms	Test time (second)	Test repeat times	The number of bacteria In the control sample (cfu/mL)	The number of bacteria in the test sample (cfu/mL)	Sterilization logarithm	Killing rate (%)
<i>Escherichia coli</i> 8099	30	1	3.0×10 ⁷	2.2×10 ²	≥5.00	99.999
		2	4.2×10 ⁷	2.6×10 ²	≥5.00	99.999
		3	3.3×10 ⁷	3.1×10 ²	≥5.00	99.999
<i>Escherichia coli</i> 8099	60	1	3.0×10 ⁷	<10	≥5.00	>99.999
		2	4.2×10 ⁷	<10	≥5.00	>99.999
		3	3.3×10 ⁷	<10	≥5.00	>99.999
<i>Escherichia coli</i> 8099	90	1	3.0×10 ⁷	<10	≥5.00	>99.999
		2	4.2×10 ⁷	<10	≥5.00	>99.999
		3	3.3×10 ⁷	<10	≥5.00	>99.999
<i>Pseudomonas aeruginosa</i> ATCC 15442	30	1	4.1×10 ⁷	25	≥5.00	99.999
		2	3.6×10 ⁷	30	≥5.00	99.999
		3	3.2×10 ⁷	50	≥5.00	99.999
<i>Pseudomonas aeruginosa</i> ATCC 15442	60	1	4.1×10 ⁷	<10	≥5.00	>99.999
		2	3.6×10 ⁷	<10	≥5.00	>99.999
		3	3.2×10 ⁷	<10	≥5.00	>99.999



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Test organisms	Test time (second)	Test repeat times	The number of bacteria In the control sample (cfu/mL)	The number of bacteria in the test sample (cfu/mL)	Sterilization logarithm	Killing rate (%)
<i>Pseudomonas aeruginosa</i> ATCC 15442	90	1	4.1x10 ⁷	<10	≥5.00	>99.999
		2	3.6x10 ⁷	<10	≥5.00	>99.999
		3	3.2x10 ⁷	<10	≥5.00	>99.999
<i>Salmonella aertrycke</i> NICPBP 50115	60	1	3.5x10 ⁷	40	≥5.00	99.999
		2	3.0x10 ⁷	50	≥5.00	99.999
		3	3.6x10 ⁷	40	≥5.00	99.999
<i>Klebsiella pneumoniae</i> ATCC 4352	60	1	2.3x10 ⁷	65	≥5.00	99.999
		2	1.2x10 ⁷	30	≥5.00	99.999
		3	1.9x10 ⁷	40	≥5.00	99.999
<i>Porphyromonas gingivalis</i> ATCC 33277	60	1	1.6x10 ⁷	<10	≥5.00	>99.999
		2	2.1x10 ⁷	<10	≥5.00	>99.999
		3	1.5x10 ⁷	<10	≥5.00	>99.999
<i>Legionella pneumophila</i> ATCC 33152	60	1	3.2x10 ⁷	<10	≥5.00	>99.999
		2	2.9x10 ⁷	<10	≥5.00	>99.999
		3	3.9x10 ⁷	<10	≥5.00	>99.999

Remark:

- (1) Concentration of test samples: 50%.
- (2) *test was carried out by external laboratory assessed as competent

SAMPLE DESCRIPTION: Sample in bottle

Test sample photo



Reference photo



*** End of Report***



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