



Sterilization and drying should always go hand in hand.

INTRODUCTION

Wabi Baby™ sterilizer is the first of its kind. It's a 3-in-1 appliance that combines steam sterilization, hot air drying, and offers functional storage; it simplifies and improves the after-wash care procedure with an easy push of a button. It eliminates the time consumption and health risks that come with traditional open-air drying. At Wabi Baby™, we believe that sterilization and drying should always go hand in hand and that drying is just as important as sterilizing.

INTERTEK

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The initial tests were done by Intertek. Intertek is a trusted provider of quality solutions for many of the world's leading brands and companies. It is an industry leader in safety and certification, who employs over 38,000 people at 1,000 locations in more than 100 countries.

PREVIOUS TEST RESULTS

When first assessing the effectiveness of the Wabi Baby™ sterilizer, we tested it with common household germs. The initial tests¹ were done using a full sterilization cycle with 100ml of water added. Nine plastic baby bottles were used as samples with bottles placed inside the chamber and other bottle components placed on the top accessory basket. The final result was observed that more than 99.9% bacteria were reduced.

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Microbial species tested

- *Staphylococcus aureus* ATCC 6538
- *Escherichia coli* ATCC 25922

Based on these exciting results, we wanted to expand our tests and determine if our sterilizer could be used to sterilize important medical devices and if the sterilization process was equally effective against important human pathogens. The following sections describe our latest experiments and results that focused on medical devices used by patients with cystic fibrosis and the microbes commonly associated with it.

NEBULIZERS EXPERIMENT

Nebulizers are medical devices used to inhale medication by patients with cystic fibrosis. To ensure healthy, safety and increase the effectiveness of treatment, it's important to sterilize nebulizer before each used. Sterilization using an electric steam baby bottle sterilizer is one of the after-wash care methods recommended by the Cystic Fibrosis Foundation². Wabi Baby™ sterilizer follows the proper sterilization and drying guidelines recommended for nebulizer care and is much safer and efficient in comparison with most methods listed.

Due to the convenient of effective sterilization, fast drying and proper storage function, doctors on the Cystic Fibrosis Teams at many children's hospitals have been recommending Wabi Baby™ sterilizer to their patients. We are also very fortunate to receive a lot of love and recommendations from our users that are also using our sterilizers with their nebulizers.

In order to showcase our superior efficient sterilization power, we decided to conduct additional tests³ using nebulizers as samples with microbial species associated with cystic fibrosis.

MATERIALS AND METHODS

Samples:

- 4 Pari™ reusable nebulizers (the most commonly used nebulizer)
- 3 nine oz glass baby bottles provided by the testing lab

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Wabi Baby sterilizer is effective in combat common household germs and bacteria

Nebulizer Care by cff.org

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<https://www.cff.org/PDF-Archive/Nebulizer-Care-in-the-Home-Slides/>
Or
Google Search "cff.org nebulizer care"

TÜV Rheinland

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Testing Period: 2016/01/13-02/05
Our recent test was done by TÜV Rheinland. TÜV Rheinland is a well-trusted global provider of technical, safety, and certification services with headquarters in Cologne, Germany. It employs about 19,320 people in 520 locations in 69 countries.

Wabi baby™ sterilizer efficiently follows the proper sterilization and drying guidelines for nebulizer care recommended by Cystic Fibrosis Foundation

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Sterilization Cycle

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The sterilization cycle utilizes a built-in smart sensor. The sterilization time is dependent on the amount of water added. The sensor shuts off the sterilizer when all the water has evaporated. Typical sterilization times are approximately 7-15 minutes when using the recommended 80-100 ml of water. Keep in mind that there are additional factors that can affect sterilization time (e.g., the amount of water added, excess water on the items being sterilized, and the amount of items inside the sterilizer).

Figure 1. Identifying each individual piece from the nebulizer.

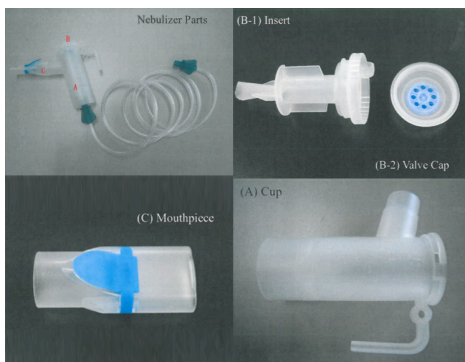


Figure 2. showcasing sample items placed randomly inside the chamber with the given instruction not to block the air circulation between the samples.



Microbial species: These microorganisms were suggested for testing by a cystic fibrosis specialist. Each microorganism was inoculated into Sterile TB broth and incubated for 18 hours at 95⁰F. Bacteria were then diluted in sterile TB to a final concentration of approximately 5.0x10⁵ to 5.0x10⁶ CFU/ml.

- Methicillin resistant Staphylococcus aureus BCRC15211
- Achromobacter xylooxidans BCRC12839
- Burkholderia cepacia BCRC10735
- Pseudomonas aeruginosa BCRC15594

Sterilizer: Wabi Baby™ Steam Sterilizer Plus Model. This is the model used for this particular lab test; however, we utilized the same mechanical components for all productions, these test results apply to all the steam sterilizer that we have produced since 2013.

These models include:

- WA-8810N: Plus model in blue/white
- WA-8811N: Plus model in gray/white (BuyBuy Baby exclusive)
- WA-8800N / TM-708N: discontinued model

Testing Cycle: An automatic cycle which includes a full steam sterilization⁴ and a preset 35 minutes drying time.

Water Amount: To further demonstrate our sterilization effectiveness, we have decreased the amount of water added to the sterilizer from 100 ml to 80 ml. This also shortens the sterilization time. We have proven in the results section that this does not affect and alter the more than 99.9% bacterial-killing result.

Testing procedures:

For each test, one milliliter containing approximately 5.0 x 10⁵ - 5.0 x 10⁶ CFUs concentration of bacteria was sprayed to the interior of each baby bottle and nebulizer. The sample baby bottles and nebulizers were placed inside the chamber and on top of the accessory basket. After a complete automatic cycle, each microbial species was quantified by counting the recovered viable bacteria that remained on the sample. Then the reduction rate was able to calculate from the amount of viable bacteria quantified. Each strain was tested independently four times by repeating the same procedure to get a reliable and consistent result.

RESULT AND DISCUSSION

The numbers of bacteria recovered after the automatic sterilization function using 80ml of water and the 35 minutes drying cycle are shown in Tables 1-4. In each case, based on the reduced amount of viable bacteria and no growth found in any of the sample items, which indicates that more than 99.9% of the bacteria were killed. We observed the same bacteria reducing efficiency in each of the four independent tests. The nursing bottles were only tested 3 times due to a limited amount of samples.

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Table 1-4: Results of microbiological tests. Each sample was tested repeating the exact same procedure four time to produce consistent results. CFU = Colony forming unit, < = less than, > = more than. Reduction Rate = (Test 1-4)/ bacteria inoculated x 100%

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Table 1. Methicillin resistant Staphylococcus aureus BCRC15211						
	Nebulizer				Nursing Bottle	
	Cup	Insert	Valve Cap	Mouthpiece	Body	Nipple
Bacteria Inoculated	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵
Test 1	<10	<10	<10	<10	<10	<10
Test 2	<10	<10	<10	<10	<10	<10
Test 3	<10	<10	<10	<10	<10	<10
Test 4	<10	<10	<10	<10	<10	<10
Reduction Rate	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%

Wabi Baby Sterilizer performs a uniform sterilization within all chamber area



CONCLUSIONS

At Wabi Baby™ we understand that eliminating common and opportunistic bacteria is an ongoing battle in the daily life of susceptible and immunocompromised patients. We hope that you are as delighted with our proven test results as we are. Once again, we've shown that the Wabi Baby sterilizer eliminated more than 99.9% of microorganisms and we are able to perform a uniform sterilization within all chamber area!

These exciting results were verified by two independent third party testing labs. With a simple push of a button, you can easily eradicate microbial contaminants, eliminate the need for separate drying racks, and do away with long hours of air-drying. Again, here at Wabi Baby™, we always believe that drying is just as important as sterilizing.

Table 2. Achromobacter xylosoxidans BCRC12839						
	Nebulizer				Nursing Bottle	
	Cup	Insert	Valve Cap	Mouthpiece	Body	Nipple
Bacteria Inoculated	2.2x10 ⁴	2.2x10 ⁴	2.2x10 ⁴	2.2x10 ⁴	2.2x10 ⁴	2.2x10 ⁴
Test 1	<10	<10	<10	<10	<10	<10
Test 2	<10	<10	<10	<10	<10	<10
Test 3	<10	<10	<10	<10	<10	<10
Test 4	<10	<10	<10	<10	n/a	n/a
Reduction Rate	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%

Table 3. Burkholderia cepacia BCRC10735						
	Nebulizer				Nursing Bottle	
	Cup	Insert	Valve Cap	Mouthpiece	Body	Nipple
Bacteria Inoculated	1.7x10 ⁴	1.7x10 ⁴	1.7x10 ⁴	1.7x10 ⁴	1.7x10 ⁴	1.7x10 ⁴
Test 1	<10	<10	<10	<10	<10	<10
Test 2	<10	<10	<10	<10	<10	<10
Test 3	<10	<10	<10	<10	<10	<10
Test 4	<10	<10	<10	<10	n/a	n/a
Reduction Rate	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%

Table 4. Pseudomonas aeruginosa BCRC15594						
	Nebulizer				Nursing Bottle	
	Cup	Insert	Valve Cap	Mouthpiece	Body	Nipple
Bacteria Inoculated	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵	5.3x10 ⁵
Test 1	<10	<10	<10	<10	<10	<10
Test 2	<10	<10	<10	<10	<10	<10
Test 3	<10	<10	<10	<10	<10	<10
Test 4	<10	<10	<10	<10	n/a	n/a
Reduction Rate	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%	> 99.9%

Here at Wabi Baby™, we believe drying is just as important as sterilization

