

Test Report on Laundry Mag-Chan

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Theme of the test	Test for verifying the inhibitory effect on Legionella bacteria growth	Date created	2014/2/11
Test period	February 19, 2014	Implementation bodies	Japan Food Analysis Center
		Report No.	13126908

(1) Test objective

Determine whether an aqueous solution of magnesium hydroxide (weak alkaline) containing hydrogen generated with the aid of the Laundry Mag-Chan can inhibit the growth of Legionella bacteria in water left in a bathtub. (Verify the effect on the bathtub water left to be used for laundry washing.)

(2) Outline of the test

2-1. Test bacterial solution preparation method

After 3 to 4 days of incubation in B-CYE- α agar at $35^{\circ}\text{C} \pm 1^{\circ}\text{C}$, followed by additional 2 to 3 days of incubation in B-CYE- α agar at $35^{\circ}\text{C} \pm 1^{\circ}\text{C}$, allow bacterial cells to float freely in 1:500 nutrient broth. Then, adjust the nutrient broth to obtain a test bacterial solution with a bacterial count of 10^8 to 10^9 /mL.

2-2. Testing method

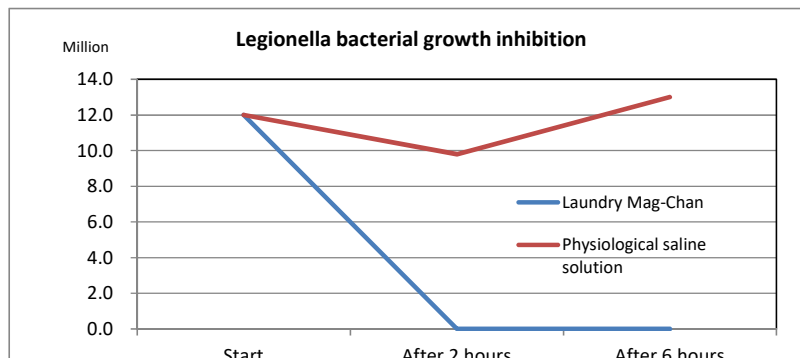
Inoculate a sample solution*1 with the test bacterial solution to obtain a test solution [with a bacterial count of 10^5 to 10^6 /mL]. Shake the test solution horizontally during storage at 25°C (approx. 110 rpm/min). (1) After 2 and 6 hours and (2) every 10 minutes up to 30 minutes, add an aliquot of the test solution to an SCDLP agar medium to determine the viable cell count in the test solution using a medium for bacterial enumeration. Note that a physiological saline solution needs to be tested similarly as a control to determine the initial viable cell count.

*1: Add 50 g of sample to 500 mL of physiological saline solution.

(3) Measurement results

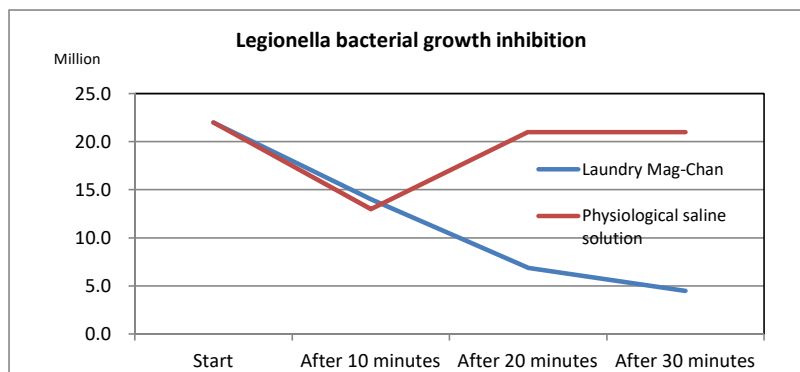
1. Changes in bacterial count after 2 and 6 hours

Test bacterium	Items to be tested	Added amount	Viable cell count (per mL)		
			Start	After 2 hours	After 6 hours
Legionella bacteria	Laundry Mag-Chan	10 g/100 mL	1.2×10^7	1.2×10^4	<100
	Physiological saline solution	-	1.2×10^7	9.8×10^6	1.3×10^7



2. Changes in bacterial count after 10, 20, and 30 minutes

Test bacterium	Items to be tested	Added amount	Viable cell count (per mL)			
			Start	After 10 minutes	After 20 minutes	After 30 minutes
Legionella bacteria	Laundry Mag-Chan	10 g/100 mL	2.2×10^7	1.4×10^7	6.9×10^6	4.5×10^6
	Physiological saline solution	-	2.2×10^7	1.3×10^7	2.1×10^7	2.1×10^7



Comments on the test results

The magnesium water produced with the aid of the Laundry Mag-Chan takes only 30 minutes to reduce by approximately 80% of the Legionella bacteria count in bathtub water, which is often left for laundry washing. After 6 hours, it was also observed that a complete inhibitory effect occurred on Legionella bacteria in the water left in a washing machine tub.

Implementation supervisor

