

## Technical bulletin

# Steam Sterilizer for Powdered Material

### A powder sterilization system developed to resolve hygiene issues caused by microbial contamination

Hansung's steam sterilizer, the first of its kind developed in Korea, was designed to overcome the limitations of conventional sterilization methods. Unlike irradiation-based systems, it uses steam to eliminate microbes — allowing products to remain free from mandatory irradiation labeling. The system achieves up to 99.99% sterilization while preserving the product's original color, aroma, and nutritional value.



#### APPLICATION FIELD



Food



Agricultural products



Seafood



Pharmaceutical



Cosmetics



Tea and coffee

#### PRODUCT SPECIFICATIONS

Type	Product name	Processing capacity
Small	HPS-100	50 ~ 100 kg/hr
Large	HPS-300	300 ~ 500 kg/hr

#### PRODUCT FEATURES



Registered patent  
Red pepper Powder  
Sterilization System

10-2039481 (KR)  
10-1445684 (KR)  
10-1462089 (KR)  
10-2094317 (KR)  
10-1414581 (KR)  
10-1768494 (KR)  
10-1794064 (KR)  
10-1830756 (KR)  
10-1603555 (KR)

#### 01 Excellent sterilization performance and quality preservation

##### • Non-damaging steam sterilization

Using high-pressure steam, it minimizes raw material damage and achieves 99.99% complete sterilization, ensuring superior effectiveness compared to dry heat sterilization.

##### • Quality preservation

Hansung's steam sterilization preserves the original quality of raw materials without any changes in color, flavor, or nutrients.

##### • Sterilization of heat-sensitive raw materials

Even heat-sensitive raw materials such as red pepper powder can be safely sterilized without any changes in color or quality.

#### 02 Safe and convenient operation

##### • Radiation-free

There is no obligation to display the radiation irradiation mark, which helps prevent consumer resistance.

##### • One-touch powder sterilization process

With a simple operation that performs sterilization and grinding just by feeding the raw material, anyone can use it easily.

##### • Constructed with hygienic materials

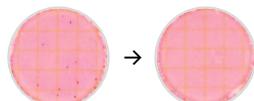
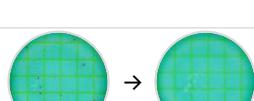
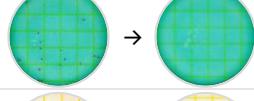
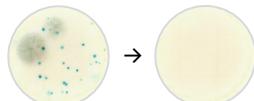
Stainless steel is used for all product-contact surfaces, providing hygienic and safe operation.

## Steam Sterilizer for Powdered Material

### 01 Analysis Results of Microbial Counts in 10 Types of Red Pepper Powder Distributed in Korea

Sample	Source	Origin	Microbial counts (CFU/g)							
			Aerobic bacteria	Enterobacteria -ceae	Coliform	<i>E. coli</i>	Lactic acid bacteria	<i>S. aureus</i>	Yeast	Mold
A	Traditional market	Korea	3,533,333	21,000	17,267	-	2,733	-	-	-
B	Traditional market	Korea	34,666,667	13,467	333	-	5,867	-	-	133
C	Traditional market	Korea	8,000,000	2,800	2,333	-	667	-	333	467
D	Traditional market	China	4,266,667	5,267	3,133	-	1,267	-	-	200
E	Hypermarket	China/Vietnam (1:1 blended)	1,933,333	667	-	-	133	-	67	-
F	Hypermarket	Korea	10,933,333	1,067	-	-	333	-	4,267	67
G	Hypermarket	Korea	21,200,000	17,533	67	-	267	-	267	-
H	Hypermarket	Korea	29,066,667	9,333	-	-	800	-	2,600	-
I	Hypermarket	Korea	3,000,000	867	600	-	667	-	9,600	-
J	Hypermarket	China	7,933,333	933	-	-	267	-	133	400

### 02 Changes in Microbial Counts of Red Pepper Powder after Steam Sterilization (Actual Experimental Results)

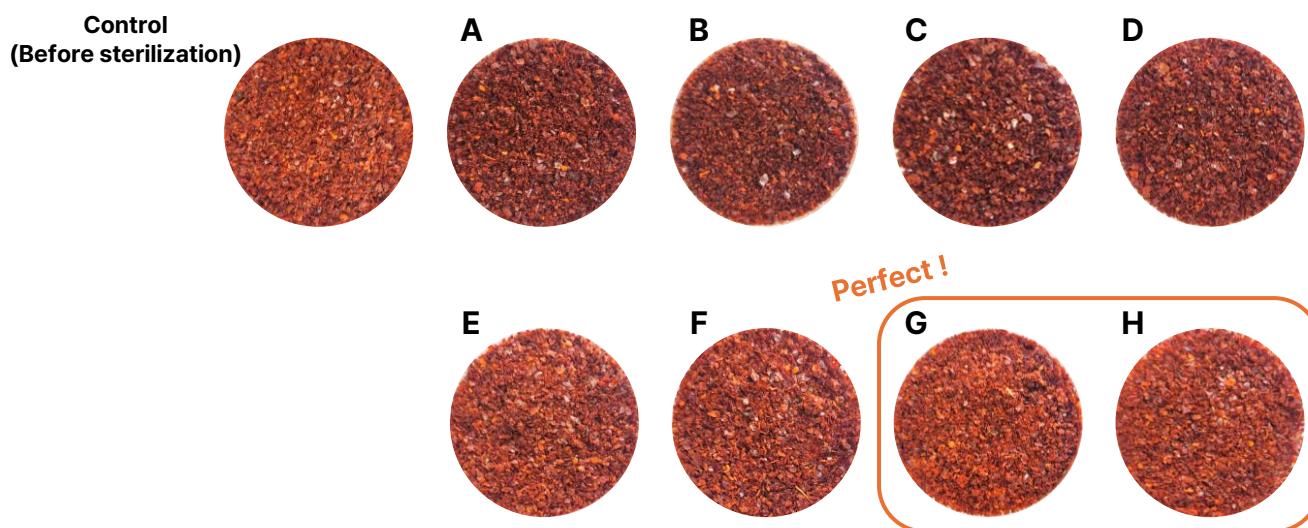
Type	Microbial counts (CFU/g)		Reduction rate (%)	Experimental Results (before→after)
	Before Sterilization	After Sterilization		
Aerobic bacteria	11,400,000	<b>533</b>	99.995	 → 
Enterobacteriaceae	9,400	-	100.0	 → 
Coliform	4,733	-	100.0	 → 
<i>Escherichia coli</i>	-	-	N/A	 → 
Lactic acid bacteria	3,200	-	100.0	 → 
<i>Staphylococcus aureus</i>	-	-	N/A	 → 
Yeast	3,400	-	100.0	 → 
Mold	867	-	100.0	

Applying Hansung's steam sterilizer achieves more than 99.99% effective sterilization.

# Steam Sterilizer for Powdered Material

## 03° Color Change of Red Pepper Powder after Sterilization

Sterilization/ Drying Conditions	Moisture Content(%)	Color Value (ASTA)	Color Value (Hunter)		
			<i>L</i>	<i>a</i>	<i>b</i>
Control (Before sterilization)	7.78 ± 0.21	50.29 ± 0.99	31.22 ± 0.53	40.70 ± 0.60	23.72 ± 0.81
A	18.48 ± 0.42	46.79 ± 0.62	26.49 ± 0.47	34.86 ± 1.00	17.66 ± 0.67
B	16.48 ± 0.56	44.55 ± 2.46	26.44 ± 0.32	35.00 ± 0.49	18.32 ± 1.40
C	17.47 ± 0.38	44.12 ± 1.30	26.14 ± 0.57	34.81 ± 0.75	17.62 ± 0.61
D	16.98 ± 0.10	43.79 ± 2.31	25.40 ± 0.93	34.33 ± 1.32	16.87 ± 1.63
E	8.01 ± 0.05	51.22 ± 0.34	29.75 ± 0.73	36.24 ± 0.67	21.61 ± 0.85
F	8.34 ± 0.58	50.62 ± 0.83	30.22 ± 0.64	36.03 ± 0.60	21.68 ± 0.95
<b>G</b>	<b>8.05 ± 0.40</b>	<b>49.31 ± 0.58</b>	<b>31.25 ± 0.67</b>	<b>40.61 ± 0.61</b>	<b>23.57 ± 0.84</b>
<b>H</b>	<b>7.82 ± 0.64</b>	<b>49.97 ± 0.34</b>	<b>31.42 ± 0.91</b>	<b>40.09 ± 0.47</b>	<b>23.83 ± 1.05</b>



Hansung's extensive expertise enables effective sterilization while maintaining the original moisture and color of raw ingredients.

With **exceptional technology**,  
we contribute to creating  
a **better world**.



**Wet Grinder**



**Wet Micropulverizer**



**Juicer**



**Dry Grinder**



**Air Classifying Mill**



**Bone Crusher**

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