

Formulating with JEECIDE® Products:
Featuring: JEECIDE® CAP-5



JEEN International has recognized the need for a synergistic blend of conventional and non-conventional preservative ingredients that inhibit microbial growth

Product Description

JEECIDE® CAP-5

INCI: Phenoxyethanol, Caprylyl Glycol, Potassium Sorbate, Water, Hexylene Glycol

JEECIDE® CAP-5 is an easy-to-use liquid preservative that is free of both Parabens and Formaldehyde donors. It's effective against bacteria, yeast, and mold. As the most powerful preservative in the JEECIDE® CAP line, CAP-5 is a preferred preservative among organizations worldwide.

JEECIDE® CAP-5 is compatible with anionic, cationic, and non-ionic surfactants and emulsifiers. It is toxicologically safe for use.

JEECIDE® CAP-5 is suitable for use in both rinse-off and leave-on products. It is effective in difficult to preserve Water/Silicone emulsions.

pH Range:

Stable in the usual operating range of 3 – 6.5

Applications

- Skin Care
- Hair Care
- Color Cosmetics
- Sun Care

Benefits:

- Broad Spectrum
- Globally approved
- Easy to use Liquid
- Compatible with:
 - Non-ionics
 - Cationics
 - Anionics
- Non-Toxic

Recommended Use Level:
 0.5 – 1.5%

Product Specifications:

Appearance @ 25°C:
 Clear to Amber Liquid

Odor:
 Slight, Characteristic

Specific Gravity:
 1.015 – 1.065

Standard Packaging:
 Drum: 400lb
 Pail: 40lb

Solubility Data

Ingredient	Compatibility
Mineral Oil	D
Cyclomethicone	IS
Dimethicone 200/100 cst.	D
Caprylic/Capric Triglycerides	S
Water	D
Propylene Glycol	S
Ethanol 190 Proof	S
Isododecane	S
C12-15 Alkyl Benzoate	S
Isopropyl Myristate	S
Butylene Glycol	S
Phenyltrimethicone	S

D: Dispersible
 IS: Insoluble
 S: Soluble

Preservative Compositional Breakdown:

Phenoxyethanol: 35-45%
Potassium Sorbate: 8 – 15%

Formulating with JEECIDE® Products: Featuring: JEECIDE® CAP-5



Method of Addition:

It is suggested not to add this blend to a product at a temperature exceeding 70 - 75°C for extended time periods. For emulsion products, because of the excellent compatibility of this blend with most ingredients, incorporation of it during the cool-down phase of processing is preferred. It is soluble or dispersible in most non-polar materials. JEECIDE CAP-5 is not water soluble however for highly aqueous systems, the addition of a co-solvent, coupling agent or surfactant (eg. Polysorbate 20) in a 1:1 ratio will make it water soluble to obtain a clear system.



Microbiological Challenge Studies:

A study was conducted using 2 formulations: an oil-in-water emulsion and a water-in-oil emulsion using 0.5% and 1.0% JEECIDE CAP-5. The protocol used was a modification of the CTFA Challenge Test using a 3 week re-challenge time period instead of a 4 week period. All samples were inoculated at the start of the study and sampled at 24 hours, 48 hours, 7 days, 14 days and 21 days. After 21 days, all samples were re-inoculated and subjected to a second challenge.

Oil-in-Water Emulsion

Ingredients	Control	0.5% JEECIDE CAP-5	1.0% JEECIDE CAP-5
Water	70.50	70.00	69.50
Glycerin	4.00	4.00	4.00
Apricot Kernel Oil	17.00	17.00	17.00
Cetearyl Alcohol & Cetareth-20	4.50	4.50	4.50
Glyceryl Stearate & PEG-100 Stearate	4.00	4.00	4.00
JEECIDE CAP-5	X	0.50	1.00

Test Organism	Unpreserved Control Initial Challenge			Unpreserved Control Re-challenge		
	24 hrs.	7 days	21 days	24 hrs.	7 days	21 days
S. aureus ATCC 6538	7.4×10^4	$<10^3$	<10	1.4×10^6	4.3×10^2	<10
P. aeruginosa ATCC 9027	2.5×10^4	1.6×10^7	1.9×10^7	1.5×10^7	2.0×10^7	1.9×10^7
K. pneumoniae ATCC 4352	1.6×10^5	7.6×10^4	4.0×10^3	1.1×10^6	1.6×10^6	4.0×10^5
C. albicans ATCC 10231	4.1×10^4	8.3×10^4	5.3×10^4	4.0×10^5	4.4×10^5	8.0×10^5
A. niger ATCC 9642 + Penicillium sp. isolate	3.4×10^4	2.5×10^4	1.4×10^4	5.1×10^4	3.0×10^4	2.9×10^4

Formulating with JEECIDE[®] Products:
 Featuring: JEECIDE[®] CAP-5



Water-In-Oil Emulsion

Ingredients	Control	0.5% JEECIDE CAP-5	1.0% JEECIDE CAP-5
Water	59.70	59.20	59.20
Glycerin	4.00	4.00	4.00
Butylene Glycol	3.00	3.00	3.00
Sodium Chloride	0.30	0.30	0.30
Cyclomethicone	7.00	7.00	7.00
Dimethicone	2.00	2.00	2.00
Isostearyl Palmitate	4.00	4.00	4.00
Isododecane & Dimethicone Crosspolymer-3	10.00	10.00	10.00
Cyclomethicone & PEG/PPG-18/18 Dimethicone	10.00	10.00	10.00
JEECIDE CAP-5	X	0.50	1.00

Test Organism	Unpreserved Control Initial Challenge			Unpreserved Control Re-challenge		
	24 hrs.	7 days	21 days	24 hrs.	7 days	21 days
S. aureus ATCC 6538	2.0 x 10 ⁴	4.0 x 10 ³	<10	9.5 x 10 ²	<10	<10
P. aeruginosa ATCC 9027	4.4 x 10 ⁴	7.1 x 10 ⁴	7.2 x 10 ³	3.6 x 10 ⁴	3.5 x 10 ⁴	1.1 x 10 ⁵
K. pneumoniae ATCC 4352	1.1 x 10 ⁵	1.1 x 10 ⁵	<10	8.0 x 10 ³	3.4 x 10 ³	<10
C. albicans ATCC 10231	1.1 x 10 ⁴	8.5 x 10 ³	8.7 x 10 ³	1.5 x 10 ³	4.8 x 10 ³	1.7 x 10 ³
A. niger ATCC 9642 + Penicillium sp. isolate	2.0 x 10 ³	1.2 x 10 ⁴	2.2 x 10 ³	2.0 x 10 ³	1.7 x 10 ³	2.2 x 10 ³

Formulating with JEECIDE® Products:
 Featuring: *JEECIDE® CAP-5*



Test Organism	0.5% JEECIDE CAP-5 Initial Challenge			0.5% JEECIDE CAP-5 Re-challenge		
	24 hrs.	7 days	21 days	24 hrs.	7 days	21 days
S. aureus ATCC 6538	<10	<10	<10	<10	<10	<10
P. aeruginosa ATCC 9027	<10	<10	<10	<10	<10	<10
K. pneumoniae ATCC 4352	<10	<10	<10	<10	<10	<10
C. albicans ATCC 10231	1.1×10^2	<10	<10	<10	<10	<10
A. niger ATCC 9642 + Penicillium sp. isolate	3.0×10^1	<10	<10	<10	<10	<10

Test Organism	1% JEECIDE CAP-5 Initial Challenge			1% JEECIDE CAP-5 Re-challenge		
	24 hrs.	7 days	21 days	24 hrs.	7 days	21 days
S. aureus ATCC 6538	<10	<10	<10	<10	<10	<10
P. aeruginosa ATCC 9027	<10	<10	<10	<10	<10	<10
K. pneumoniae ATCC 4352	<10	<10	<10	<10	<10	<10
C. albicans ATCC 10231	<10	<10	<10	<10	<10	<10
A. niger ATCC 9642 + Penicillium sp. isolate	2.0×10^1	<10	<10	<10	<10	<10

Formulating with JEECIDE® Products:
Featuring: JEECIDE® CAP-5



NEW!

Results:

Oil-in-Water

The **JEECIDE CAP-5** at 1.0% killed all the challenge organisms within 24 hours after each challenge. At 0.5%, activity was slower versus yeast and mold than against bacteria after the first challenge, but molds were reduced to less than 10 per gram within 48 hours (results not shown). After the second challenge, 0.5% was effective against all organisms within 24 hours.

Water-in-Oil

The **JEECIDE CAP-5** was effective against bacteria within 24 hours after each challenge. At 1.0%, the **JEECIDE CAP-5** was faster against yeast and mold than at 0.5% after the first challenge but no organisms were detected 24 hours after the second challenge in the presence of 0.5% or 1.0% **JEECIDE CAP-5**.

Kill Test Data

JEECIDE CAP-5 has been tested using the tube testing method. Below are the results:

JEECIDE CAP-5 @ 1%

		<u>Results</u>
<u>Bacteria</u>	<u>Pool 1</u>	<u>3</u>
	<u>Pool 2</u>	<u>3</u>
	<u>Pool 3</u>	<u>3</u>
<u>Yeast</u>	<u>Pool 4</u>	<u>3</u>
<u>Mold</u>	<u>Pool 5</u>	<u>3</u>

Scale:

0 = No Kill
1 = Slight
2 = Moderate
3 = Kill

You Can Count On Us!

All suggestions and data in this bulletin are based on information we believe to be reliable. They are offered in good faith. However, no guarantee is made or implied as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions on an experimental basis before adopting them on a commercial scale. Statements as to the use of our products are not to be construed as recommendations for their use in the infringement of any patents.