

JEECIDE® CAP-7

A Preservative-Free Antimicrobial System

INCI

Caprylyl Glycol (and) Glyceryl Laurate (and) Glyceryl Undecylenate

- ✓ Globally compliant
- ✓ Leave-on / Rinse-off
- ✓ Meets Credo, Sephora, Ulta, Target, Walmart, and Whole Foods 'Clean Standard'
- ✓ Cationic, Anionic, Non-Ionic
- ✓ Cross-category

A multifunctional cosmetic ingredient that is free of nasties in the name of Clean Beauty– meet **Jeecide® Cap-7**.

- ✓ Free of phenoxyethanol
- ✓ Free of parabens
- ✓ Free of MITs
- ✓ Free of formaldehyde releasers

Jeecide® Cap-7 contributes antimicrobial activity against;

- ✓ Gram-positive bacteria
- ✓ Gram-negative bacteria
- ✓ Yeast
- ✓ Mold



Jeecide® Cap-7 is an easy-to-use clear liquid that offers emollient and skin conditioning properties to cosmetic formulations.

PROPERTIES

APPEARANCE @ 25° C Clear, light yellow to yellow liquid

SPECIFIC GRAVITY @ 25° C 0.935 - 0.965

REFRACTIVE INDEX @ 25° C 1.4400 - 1.4600

RECOMMENDED USE LEVEL 1.0 – 1.5%



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FORMULATION GUIDELINES

- Use Jeecide[®] CAP-7 at pH 4 – 7.
- Jeecide[®] CAP-7 water dispersible and oil soluble.
- In hot process emulsions, add Jeecide[®] CAP-7 at the end of the emulsification process directly after the actives and/or fragrance phases, preferably at < 45°C, with continuous mixing until homogeneous.
- In hot pour formulas, add Jeecide[®] CAP-7 at < 70°C.
- Jeecide[®] CAP-7 cannot be used in anhydrous silicone systems.
- The polarity of Jeecide[®] CAP-7 must be considered when choosing the emulsifying system.

SOLUBILITY DATA

INGREDIENT	COMPATIBILITY
Butylene Glycol	Soluble
Glycerin	Dispersible
Caprylic/Capric Triglycerides	Soluble
Safflower Oil	Soluble
Olive Oil	Soluble
Ethanol	Soluble
Isopropyl Myristate	Soluble
Isododecane	Soluble
Water	Dispersible
Mineral Oil	Soluble
Dimethicone 10 cSt	Insoluble
Cyclomethicone D5	Insoluble
Alkanes	Dispersible



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MICROBIOLOGICAL CHALLENGE STUDIES

A typical O/W emulsion containing 1% of Jeeicide® CAP-7 was tested against a control without Jeeicide® CAP-7 to observe the growth of the following organisms;

E. Coli

A. Brasiliensis

C. Albicans

P. Aeruginosa

S. Aureus

Tests were run on emulsions at both pH 5.5 (USP <51> and PCPC tests) and pH 7 (USP <51> test) as well as a control emulsion at pH 5.5 without Jeeicide® CAP-7 .

Test Emulsion

Ingredient	INCI Name	Control, %	Test, %
Water	Water	81.75	80.75
Hydroxyethylcellulose	Hydroxyethylcellulose	0.50	0.50
Jeechem® GL-26	Glycereth-26	3.00	3.00
Jeecol® CS-20-D	Cetearyl Alcohol, Ceteareth-20	3.25	3.25
Beeswax Yellow	Beeswax	3.75	3.75
Olive Oil	Olea Europaea (Olive) Fruit Oil	5.00	5.00
Vitamin E	Tocopheryl Acetate	0.75	0.75
Jeesilc® 35C	Dimethicone, Dimethicone Crosspolymer-3	2.00	2.00
Jeeicide® CAP-7	Caprylyl Glycol, Glyceryl Laurate, Glyceryl Undecylenate	-	1.00



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pH 5.5 Test Emulsion USP <51>

Test Organism	Inoculum Level cfu/g	Log Inoculation	14 Day Survivors	14 Day Log Reduction	28 Day Survivors	28 Day Log Reduction
<i>E. coli</i>	8.9x10 ⁵	5.9	<10	4.9	<10	4.9
<i>P. aeruginosa</i>	4.8x10 ⁵	5.7	<10	4.7	<10	4.7
<i>S. aureus</i>	9.1x10 ⁵	6.0	<10	5.0	<10	5.0
<i>C. albicans</i>	3.2x10 ⁵	5.5	<10	4.5	<10	4.5
<i>A. brasiliensis</i>	4.8x10 ⁵	5.7	3.2x10 ²	3.2	<10	4.7

Results

The tested sample conforms to USP <51> Category 2 requirements. For bacteria, there was a greater than 2.0 log reduction from the initial count at 14 days, and no increase from 14 to 28 days. For yeast and molds, there was no increase from the initial calculated count at 14 and 28 days– in fact, there was a total kill of yeast and mold at 28 days.

pH 5.5 Test Emulsion PCPC

Test Organism	24 hr % Reduction (for informational purposes only, not part of PCPC specifications)	7 Day % Reduction	14 Day % Reduction	21 Day % Reduction	28 Day % Reduction
Pool 1 (<i>P.a.</i> , <i>B. cep</i> , <i>E. coli</i>)	99.9	99.9	99.9	99.9	99.9
Pool 2 (<i>S. a.</i>)	99.9	99.9	99.9	99.9	99.9
Pool 3 (<i>C. a.</i>)	99.9	99.9	99.9	99.9	99.9
Pool 4 (<i>A. niger</i>)	89.6	99.4	99.9	99.9	99.9

Results

The tested sample conforms to current PCPC specifications for determination of preservative adequacy in cosmetic formulations. The product showed reduction of bacteria ≥99.9% and mold/yeast ≥90.0% at days 7-28.

pH 5.5 Control Emulsion

Exhibited massive microbial growth too numerous to count.

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pH 7.0 Test Emulsion USP <51>

Test Organism	Inoculum Level cfu/g	Log Inoculation	14 Day Survivors	14 Day Log Reduction	28 Day Survivors	28 Day Log Reduction
<i>E. coli</i>	9.5x10 ⁵	6.0	<10	5.0	<10	4.9
<i>P. aeruginosa</i>	8.7x10 ⁵	6.0	<10	5.0	<10	4.7
<i>S. aureus</i>	9.3x10 ⁵	6.0	<10	5.0	<10	5.0
<i>C. albicans</i>	3.1x10 ⁵	5.5	<10	4.5	<10	4.5
<i>A. brasiliensis</i>	3.6x10 ⁵	5.6	4.0x10 ⁴	1.0	3.2x10 ³	2.1

Results

The tested sample conforms to USP <51> Category 2 requirements. For bacteria, there was a greater than 2.0 log reduction from the initial count at 14 days, and no increase from 14 days to 28 days. For yeast and molds, there was no increase from the initial calculated count at 14 and 28 days.

RESULTS SUMMARY

USP <51> TEST

@ pH 5.5

After 14 days, Jeecide[®] CAP-7 had completely killed off virtually all bacteria and yeast.

After 28 days, Jeecide[®] CAP-7 had completely killed off virtually all bacteria, yeast and mold.

@ pH 7

After 14 days, Jeecide[®] CAP-7 had completely killed off virtually all bacteria and yeast.

After 28 days, Jeecide[®] CAP-7 had completely killed off virtually all bacteria and yeast.

PCPC TEST

@ pH 5.5

After 14 days, Jeecide[®] CAP-7 had completely killed off virtually all bacteria, yeast and mold.

EFFICACY, DELIVERED

Overall, Jeecide[®] CAP-7 greatly exceeded the passing criteria for both tests and effectively preserved formulations by eliminating bacteria, yeast and mold.