

Formulating with JEEPLEX[®] Products:
Featuring: JEEPLEX[®] NAS and JEEPLEX[®] NAS-CG



Product Description

JEEPLEX[®] NAS
Proposed INCI: Glycerin (vegetal), Citric Acid, Lactic Acid, Ascorbic Acid

JEEPLEX[®] NAS-CG
Proposed INCI: Calcium Gluconate, Glyceryl Stearate, Citric Acid, Lactic Acid, Ascorbic Acid, Glycerin (vegetal),

The **JEEPLEXES** are Natural Antioxidant Complexes. **JEEPLEX[®] NAS and NAS-CG** are mild, yet effective, and impart little odor and color to a wide range of leave on and rinse off personal care products.

Cosmetic & Personal Care Applications:

- **Liquid Foundations**
- **Sun Screen Lotions, Creams and Sprays**
- **Moisturizing Creams and Lotions**
- **Hair Care Lotions and Conditioners**
- **Anticipated dosage range is 0.1% to 1.0% for JEEPLEX[®] NAS and 0.5% to 1.0% for JEEPLEX[®] NAS-CG**

Benefits:

- Ability to market preservative free cosmetics.

General Handling and Storage:

- Store in Clean, Dry Area
- Storage Conditions: 15 – 20 °C
- Avoid Freezing
- Shelf Life (Minimum): 12 Months

Standard Packaging

- Drum: 441 Lbs. Net Wt.
- Pail: 40 Lbs. Net Wt.

TEST METHOD

The method employed was USP 31, Section 51, Antimicrobial Effectiveness Testing and Preservative Neutralization Validation. This antioxidant complex has antibacterial, antimicrobial and antiviral properties proven to be highly effective against yeast, mold and bacteria.

RESULTS for JEEPLEX NAS

	Log ₁₀ CFU/g				
CRL06009-2	Staphylococcus aureus ATCC # 6538	Escherichia coli ATCC # 8739	Pseudomonas aeruginosa ATCC # 9027	Candida albicans ATCC # 10231	Aspergillus niger ATCC #16404
Inoculum level	5.90	6.20	6.01	5.33	4.70
Day 14	<1.00	<1.00	<1.00	3.62	4.20
Day 28	<1.00	<1.00	<1.00	<1.00	2.80
Validation	+	+	+	+	+

+ indicates that the preservative system was neutralized by a 1:10 dilution and chemical means.

ACCEPTANCE CRITERIA

For category 2 products, the preservative is effective in the sample examined if: a). The concentrations of viable bacteria demonstrate no less than a 2.0 log reduction from the initial count at 14 days and no increase from the Day 14 count at 28 days; and b). The concentrations of viable yeast and molds demonstrate no increase from the initial calculated count at 14 and 28 days.

CONCLUSION

The test material, Jeeplex[®] NAS Project J4/35A conforms to the acceptance criteria for USP 31 <51> category 2 products.

Challenge Test Formulation J4/35A

Ingredients	%
Water	69.50
Glycerin	4.00
Apricot Kernel Oil	17.00
Cetearyl Alcohol & Ceteareth-20	4.50
Glyceryl Stearate & PEG-100 Stearate	4.00
JEEPLEX[®] NAS	1.00

Formulating with JEEPLEX[®] Products: Featuring: JEEPLEX[®] NAS and JEEPLEX[®] NAS-CG



A. Test Method

The method employed was CTFA 2007, Determination of Preservative Adequacy in Cosmetic Formulations utilizing a cold process oil-in-water Control and Test emulsion.

Jeeplex NAS - CG Control Lotion J7-63A

Organism	Initial	0 Hour	1 Day	3 Days	7 Days	14 Days	21 Days	28 Days
<i>P. aeruginosa</i> (CFU/mL)	2.9×10^6	1.3×10^6	5.7×10^5	3.6×10^6	2.8×10^6	1.7×10^6	2.1×10^6	1.8×10^6
<i>E. coli</i> (CFU/mL)	7.3×10^6	3.5×10^6	8.8×10^5	3.4×10^4	1.9×10^3	4.4×10^2	9.1×10^2	1.4×10^4
<i>S. aureus</i> (CFU/mL)	7.3×10^6	4.5×10^6	2.9×10^5	1.5×10^6	4.5×10^4	4.0×10^4	5.8×10^2	7.0×10^1
<i>C. albicans</i> (CFU/mL)	2.7×10^5	1.3×10^5	1.5×10^5	1.9×10^5	2.0×10^5	1.7×10^5	5.9×10^5	2.3×10^4
<i>A. niger</i> (CFU/mL)	2.9×10^5	1.8×10^5	2.0×10^5	2.7×10^4	3.3×10^4	4.8×10^4	5.3×10^4	4.9×10^4

Jeeplex NAS - CG Test Lotion J7-63B

Organism	Initial	0 Hour	1 Day	3 Days	7 Days	14 Days	21 Days	28 Days
<i>P. aeruginosa</i> (CFU/mL)	2.9×10^6	4.4×10^4	1.6×10^3	6.0×10^1	<10	<10	<10	<10
<i>E. coli</i> (CFU/mL)	7.3×10^6	4.0×10^6	7.8×10^4	3.1×10^3	2.0×10^1	<10	<10	<10
<i>S. aureus</i> (CFU/mL)	7.3×10^6	7.2×10^6	1.8×10^6	1.2×10^3	2.6×10^3	<10	<10	<10
<i>C. albicans</i> (CFU/mL)	2.7×10^5	1.3×10^5	3.4×10^2	4.6×10^2	5.0×10^1	<10	<10	<10
<i>A. niger</i> (CFU/mL)	2.9×10^5	1.9×10^5	1.4×10^5	2.7×10^5	2.8×10^3	4.2×10^3	3.8×10^3	2.2×10^3

Phase	Ingredients	INCI Nomenclature	J7-63A % Control	J7-63B % w/Jeeplex NAS-CG
A	DI.Water	Distilled water	81.0	81.0
A	Triethanolamine 99%	Triethanolamine	1.0	1.0
A	Jeesperse [®] CPW-EW1LP	Stearic Acid, Ceteareth-20, Cetearyl Alcohol, Sodium Polyacrylate	7.0	7.0
B	Mineral Oil	Mineral Oil	3.0	3.0
B	Jeesilc [®] PDS-350	Dimethicone	2.0	2.0
B	Glycerine 99%	Glycerine	2.0	2.0
C	Jeechem [®] IPM	Isopropyl Myristate	2.0	2.0
C	Sweet Almond Oil	Prunus Amygdalus Dulcis (Sweet Almond) Oil	0.5	0.5
C	Cucumber Melon Fragrance	Fragrance	0.1	0.1
C	Avocado Oil	Persea Gratissima (Avocado) Oil	0.4	0.4
C	JEEPLEX[®] NAS-CG		X	1.0
		Adjust pH to 5.5 – 6.0 with 10% Citric Acid		

Procedure:

- 1.) Add Water and TEA of Phase A
- 2.) Slowly add in the Jeesperse CPW-EW1LP and mix until homogenous
- 3.) Add in the Mineral Oil, Jeesilc PDS-350 and Glycerin of Phase B
- 4.) Pre-mix Phase C and warm to 40C
- 5.) Add Phase C to batch
- 6.) Adjust pH with Citric Acid