



Jeecide[®] AA Series

Globally Approved Broad Spectrum Preservatives

Highly functional
Easy to use
Non-toxic

*JEEN preservatives
are proven effective
against bacteria,
yeast, and mold.*

Typical Applications:

- Shampoos and Conditioners
- Hand Soaps
- Creams and Lotions
- Sunscreens
- Serums and Treatment Products
- Wet Wipes
- Color Cosmetics Containing Water

www.JEEN.com

Jeecide® Series

Globally Approved Broad Spectrum Preservatives

Jeecide® AA

Benzyl Alcohol, Benzoic Acid, Sorbic Acid

Introduction

Jeecide® AA is an easy to use liquid blend of Benzyl Alcohol, Benzoic Acid, and Sorbic Acid formulated in balance to meet the preservation needs of personal care products from shampoos and conditioners to skin care serums as well as most creams and lotions. It is particularly useful in natural and organic formulations due to the wide acceptance of the three components comprising the product.

Jeecide AA can function across an enhanced pH spectrum vs. any of the three ingredients separately. The balanced ratio creates synergistic improved performance as a preservative blend across a wider pH range than typical limited acidic systems. Both **Jeecide AA** and **Jeecide AA Plus** function across a pH range of 2 - 7.

Jeecide AA functions as a broad spectrum anti-microbial agent by utilizing the benzyl alcohol as a bactericide in controlling Gram-negative bacteria while the balanced benzoic acid and sorbic acid work at controlling and suppressing the growth of bacterial organisms and spore germination.

Jeecide AA can be used in both rinse-off and leave-on products at a concentration of 0.5% to 1.1% depending on the final pH of the end product's system. **Jeecide AA** is recommended to be added near the end of the formulating process along with final dyes, fragrance masks, sunscreens, and perfumes. The pH of the end system/formula is recommended to be adjusted just prior to the addition of **Jeecide AA** for best solubility and to ensure that no singular component in the system can influence the pH of the end product. Inclusion of **Jeecide AA** earlier in the formula is possible, but not recommended.

All components of **Jeecide AA** are widely used preservation agents and are accepted and endorsed in Natural and Organic Products and Programs. **Jeecide AA** has carefully balanced ratios which optimize the performance and create additional synergies for improved function at a wider pH spectrum.

Jeecide AA and Jeecide AA Plus Typical Properties	
Appearance	Clear to slightly yellow liquid
Odor	Faint, Characteristic
Solubility	Soluble in water at recommended concentrations

Jeecide AA Challenge Test USP <51> using O/W non-ionic Emulsion, pH 5.0 containing 1% Jeecide AA					
	1 Day	3 Day	7 Day	14 Day	28 Day
<i>S. aureus</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.76	4.76	4.76	4.76	4.76
<i>P. aeruginosa</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.86	4.86	4.86	4.86	4.86
<i>A. brasiliensis</i> CFU/g	65,000	1.1	< 10	< 10	< 10
Log Reduction	0.32	2.09	4.13	4.13	4.13
<i>C. albicans</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.56	4.56	4.56	4.56	4.56
<i>E. coli</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.81	4.81	4.81	4.81	4.81

Jeecide AA Regulatory Status			
USA and CANADA	Benzyl Alcohol	Benzoic Acid	Sorbic Acid
Permitted Limit	Up to 10.0%	Up to 5.0%	Up to 5.0%
Listed as a preservative	Yes	Yes	Yes
EU	Benzyl Alcohol	Benzoic Acid	Sorbic Acid
Permitted Limit	Up to 1.0%	Up to 2.5% Rinse-Off Up to 1.5% Oral Care Up to 0.5% Leave-On	Up to 0.6%
Listed as a Preservative	Yes	Yes	Yes
Japan	Benzyl Alcohol	Benzoic Acid	Sorbic Acid
Permitted Limit	No Limit	Up to 0.20%	Up to 0.5%
Listed as a Preservative	Not listed	Yes	Yes

The Maximum Allowed Use Limit	USA and Canada	EU	Japan
of Jeecide AA	up to 11.8%	up to 1.1%	up to 2.0%
of Jeecide AA Plus	up to 18.2%	up to 1.8%	up to 2.0%

Jeecide® AA Plus

Benzyl Alcohol, Pentylene Glycol, Benzoic Acid, Sorbic Acid

Introduction

Jeecide® AA Plus is an optimized easy to use liquid blend of Benzyl Alcohol, Benzoic Acid, and Sorbic Acid formulated with Pentylene Glycol to create a synergistic balanced preservative composite to meet the preservation needs of personal care products. This carefully balanced blend delivers powerful protection to everything from shampoos and

Jeecide AA Plus Challenge Test USP <51> using O/W non-ionic Emulsion, pH 5.0 containing 1% Jeecide AA Plus					
	1 Day	3 Day	7 Day	14 Day	28 Day
<i>S. aureus</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.76	4.76	4.76	4.76	4.76
<i>P. aeruginosa</i> CFU/g	< 10	< 10	< 10	< 10	< 10
Log Reduction	4.86	4.86	4.86	4.86	4.86
<i>A. brasiliensis</i> CFU/g	97,000	18,000	100	< 10	< 10
Log Reduction	0.14	0.88	3.13	4.13	4.13
<i>C. albicans</i> CFU/g	43,000	< 10	< 10	< 10	< 10
Log Reduction	0.93	4.56	4.56	4.56	4.56
<i>E. coli</i> CFU/g	100	< 10	< 10	< 10	< 10
Log Reduction	3.81	4.81	4.81	4.81	4.81

conditioners to skin care serums as well as most creams and lotions. **Jeecide AA Plus** delivers equally potent results as Jeecide AA while using a lower threshold of benzyl alcohol, benzoic, and sorbic acids. Therefore, this powerful composite allows for use at higher percentage in formulations while staying at or below the maximum allowable limits for preservatives in more challenged applications or for more challenging preservation needs. Both **Jeecide AA** and **Jeecide AA Plus** function across a pH range of 2 - 7.

JEEN[®]

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Please contact your JEEN Representative or visit our website at www.JEEN.com to learn more about our products, our technologies and how we can help you reduce your carbon footprint and produce a greener product.

Jeecide AA SS ver 1.1