

# Geogard® ECT (patented)

# **Broad Spectrum Preservation System**



INCI Name: Benzyl Alcohol & Salicylic Acid & Glycerin & Sorbic Acid

SAP Code#: 139650

# **Key Product Attributes:**

- A preservation system that meets the ECOCERT standards
- COSMOS accepted
- Broad spectrum activity on bacteria, yeast and molds
- Has a wide range of global regulatory acceptance\* †
- Low odor profile; Ideal for fragrance-free and fragrance-sensitive systems
- Compatible in a wide range of skin care, hair care and sun care systems
- Wide pH compatibility: pH 3-8
- Excellent safety profile

† In Japan, Benzyl Alcohol is not an approved cosmetic preservative, however it can be used as a cosmetic ingredient.

## Recommended Use Level

0.6-1.0%

# **Description**

Geogard® ECT is a unique, patented combination of four components: Benzyl Alcohol, Salicylic Acid, Sorbic Acid, and Glycerin, which are well-accepted in a wide range of personal care products. This blend's novel composition offers broad spectrum protection in a diverse range of products against Gram-positive & Gram-negative bacteria, yeast and molds.

 $<sup>\</sup>hbox{$^*$ In Europe, there are restrictions in using Salicylic Acid in products for children under the age of 3.}$ 

# Compositional Breakdown

Chemical Compound Breakdown	CAS No.	EINECS
Benzyl Alcohol	100-51-6	202-859-9
Salicylic Acid	69-72-7	200-712-3
Glycerin	56-81-5	200-289-5
Sorbic Acid	110-44-1	203-768-7

Chemical Compositional Breakdown	%
Benzyl Alcohol	77–86%
Salicylic Acid	8-15%
Glycerin	3–5%
Sorbic Acid	1-4%

# **Applications**

- Anhydrous
- Body Butter
- Body wash
- Conditioner
- Cream
- Deo/ Anti-Perspirant
- Eye creams/gels
- Eye shadow
- Face Lotion
- Face wipes
- Facial Cream
- Foundation
- Feminine hygiene
- Hair gel

- Hand soap (non anti-bac)
- Lipstick/gloss
- Lotion
- Make up remover
- Mascara
- Oil in Water
- Oral care
- Powder
- Shampoo
- Suncare
- Toner
- Water in Oil

# Make-Up Remover

pH: 5.15

% water: 90%; A<sub>w</sub>: 0.980

Ingredient	%
Deionized Water	q.s. to 100%
Propylene Glycol	2.00%
Glycerin	2.00%
PEG-8	2.00%
Decyl Glucoside	4.00%
Total	100.00%

## Test Results

### Colony Forming Units per Gram (CFU/g)

Test Organism	Unprese	Test-Geogard® ECT (1%)						
	Initial Ch	Initial Challenge			Initial Ch	allenge	9	Rechallenge
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days
S. aureus	9.0x10	<10	<10	<10	2.0x10	< 10	<10	<10
K. pneumoniae + E. gergoviae	5.3x10 <sup>3</sup>	<10	<10	<10	4.0x10	<10	<10	<10
P. aeruginosa + B. cepacia	3.3x10 <sup>5</sup>	1.8x10 <sup>6</sup>	1.4×10 <sup>6</sup>	7.7x10 <sup>6</sup>	1.0×10	<10	<10	<10
C. albicans	1.8x10 <sup>4</sup>	1.9x10 <sup>4</sup>	1.2x10 <sup>4</sup>	1.5×10 <sup>4</sup>	<10	<10	<10	<10
Mixed molds	1.5×10 <sup>4</sup>	2.4x10 <sup>4</sup>	1.1×10 <sup>4</sup>	7.0×10 <sup>4</sup>	<10	<10	<10	<10

## Hair Conditioner

pH: 3.9

% water: 73.7%; Aw: 0.976

Ingredient	%
Phase A	
Deionized Water	q.s. to 100%
Hydroxyethylcellulose	0.30%
Phase B	
Cetrimonium Bromide & Cetearyl Alcohol	1.00%
Stearyl Alcohol	1.00%
Steareth-21	2.50%
Polysorbate 80	0.50%
Lecithin	1.00%
Water	20.00%
Total	100.00%

# Efficacy

### Microbiological Challenge Studies

Studies were run on five formulas using a 1.0% concentration of Geogard® ECT. The protocol used was a CTFA challenge test. All samples were inoculated at the beginning of the study, sampled at 24 hours, 7, 14, 21 and 28 days. The samples were diluted in neutralizer and plated quantitatively for viable organisms at all sampling times. After 28 days, all samples were re-inoculated and subjected to a second challenge.

### **Test Results**

### Colony Forming Units per Gram (CFU/g)

Test Organism	Unpreserved Control				Test-Geogard® ECT (1%)				
	Initial Challenge			Rechallenge	Initial Cl	nalleng	е	Rechallenge	
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days	
S. aureus	3.5x10 <sup>5</sup>	<10	< 10	< 10	< 10	< 10	< 10	< 10	
K. pneumoniae + E. gergoviae	9.4x10 <sup>5</sup>	3.4x10 <sup>5</sup>	2.6x10 <sup>8</sup>	3.5x10 <sup>6</sup>	<10	<10	<10	<10	
P. aeruginosa + B. cepacia	4.9x10 <sup>5</sup>	>106	3.0x10 <sup>8</sup>	<10	2.0x10 <sup>2</sup>	<10	<10	<10	
C. albicans	3.3x10 <sup>5</sup>	3.3x10 <sup>6</sup>	2.7x10 <sup>6</sup>	2.8x10 <sup>7</sup>	6.0x10	< 10	< 10	< 10	
Mixed molds	2.1x10 <sup>4</sup>	3.5x10 <sup>3</sup>	1.2x10 <sup>3</sup>	1.4x10 <sup>4</sup>	<10	<10	<10	<10	

# Make-Up Remover

pH: 8.1

% water: 44%; A<sub>w</sub>: 0.965

Ingredient	%	
Deionized Water	q.s. to 100%	
Propylene Glycol	2.00%	
Glycerin	2.00%	
PEG-8	2.00%	
Decyl Glucoside	50.00%	
Total	100.00%	

## **Test Results**

### Colony Forming Units per Gram (CFU/g)

Test Organism	Unpreserved Control				Test-Geogard® ECT (1%)				
	Initial Challenge			Rechallenge	Initial	Challeng	e	Rechallenge	
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days	
S. aureus	1.0x10 <sup>2</sup>	< 10	<10	< 10	< 10	< 10	< 10	<10	
K. pneumoniae + E. gergoviae	5.1x10 <sup>6</sup>	8.0x10 <sup>6</sup>	2.5x10 <sup>6</sup>	8.0x10 <sup>5</sup>	< 10	<10	<10	<10	
P. aeruginosa + B. cepacia	4.5x10 <sup>6</sup>	6.6x10 <sup>6</sup>	1.5x10 <sup>6</sup>	3.2x10 <sup>6</sup>	<10	<10	<10	<10	
C. albicans	4.0x10 <sup>2</sup>	< 10	<10	<10	< 10	< 10	< 10	<10	
Mixed molds	1.1x10 <sup>4</sup>	2.5x10 <sup>4</sup>	2.0x10 <sup>4</sup>	1.0x10 <sup>5</sup>	< 10	< 10	< 10	<10	

# Water in Oil Emulsion Cream (Lot#: AR12-068)

pH: n/a

% water: 75%; A<sub>w</sub>: 0.963

Ingredient	%
Phase A	
Deionized Water	q.s. to 100%
Glycerin	3.00%
Sodium Chloride	1.00%
Phase B	
Cyclomethicone & Dimethicone	10.00%
Cyclopentasiloxane	8.50%
Cyclomethicone & Dimethicone & Petrolatum	2.50%
Total	100.00%

## **Test Results**

### Colony Forming Units per Gram (CFU/g)

Test Organism	Unpreserved Control					Test-Geogard® ECT (1%)				
	Initial Challenge			Rechallenge	Initial Challenge			Rechallenge		
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days		
S. aureus	8.6x10 <sup>4</sup>	< 10	< 10	< 10	< 10	< 10	< 10	<10		
K. pneumoniae + E. gergoviae	5.6x10 <sup>4</sup>	< 10	<10	<10	<10	<10	<10	<10		
P. aeruginosa + B. cepacia	3.1x10 <sup>4</sup>	2.9x10 <sup>3</sup>	<10	3.4x10 <sup>5</sup>	<10	<10	<10	<10		
C. albicans	4.6x10 <sup>4</sup>	1.3x10 <sup>4</sup>	2.9x10 <sup>3</sup>	5.3x10 <sup>4</sup>	< 10	< 10	< 10	<10		
Mixed molds	1.2x10 <sup>4</sup>	9.7x10 <sup>3</sup>	7.0x10 <sup>3</sup>	3.4x10 <sup>5</sup>	<10	<10	<10	<10		

# Lotion (Lot# KKL-1446)

pH: 7.85

% water: 89%; A<sub>w</sub>: 0.976

Ingredient	%
Deionized Water	q.s. to 100
Glycerin	2.00%
Cyclomethicone & Dimethicone & Phenyl Trimethicone	2.00%
Cyclopentasiloxane	5.00%
Sodium Acrylate/Sodium Acryloyldimethyl Taurate Copolymer & Hydrogenated Polydecane & Sorbitan Laurate & Trideceth-6	2.00%
Total	100.00%

### **Test Results**

### Colony Forming Units per Gram (CFU/g)

Test Organism	Unprese	Test-Geo	ogard®	ECT (1	%)			
	Initial Challenge			Rechallenge	Initial Challenge			Rechallenge
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days
S. aureus	1.3x10 <sup>6</sup>	1.6x10 <sup>4</sup>	3.0x10 <sup>4</sup>	8.0x10 <sup>3</sup>	7.0x10	< 10	< 10	<10
K. pneumoniae + E. gergoviae	1.3×10 <sup>6</sup>	9.5x10 <sup>5</sup>	7.0x10 <sup>5</sup>	2.3x10 <sup>3</sup>	2.0x10	<10	<10	<10
P. aeruginosa + B. cepacia	>106	8.5x10 <sup>6</sup>	4.3x10 <sup>7</sup>	9.8x10 <sup>7</sup>	<10	<10	<10	<10
C. albicans	1.1x10 <sup>5</sup>	1.0x10 <sup>5</sup>	9.0x10 <sup>5</sup>	1.5x10 <sup>5</sup>	8.7x10 <sup>3</sup>	< 10	< 10	< 10
Mixed molds	2.3x10 <sup>6</sup>	9.0x10 <sup>4</sup>	1.6x10 <sup>4</sup>	7.0x10 <sup>4</sup>	1.8x10 <sup>3</sup>	<10	<10	<10

Typical Properties	
Appearance	Clear, colorless to straw
Color (Gardner)	2 Max.
Odor	Characteristic

## Formulation Recommendations

- Versatile, clear liquid
- Can be easily added directly to most any system
- Compatible with most ingredients used in personal care
- For emulsified systems
  - Can be easily integrated post-emulsification at temperatures below 45°C
  - Limited pH restrictions

# Global Regulatory

### Europe

- All ingredients approved (Annex V to Regulation EC/1223/2009 formerly Annex VI to Council Directive 76/768/EEC)
  - Max concentration of 1% Benzyl Alcohol, 0.5% Salicylic Acid and 0.6% Sorbic Acid

### Japan

- All ingredients approved (JNCI)
  - Max concentration of 1% Benzyl Alcohol, 0.2% Salicylic Acid and 0.6% Sorbic Acid
  - Benzyl Alcohol is not approved as a preservative but can be used as a general cosmetic ingredient

### **United States**

- All ingredients allowed (CIR/PCPC)
  - Max concentration of 1% Benzyl Alcohol, 0.5% Salicylic Acid and 0.6% Sorbic Acid

#### General

 Cannot be used in products for children under 3 except for shampoo

### USA

Lonza Consumer Care 70 Tyler Place South Plainfield, NJ 07080 Tel +1 908 561 5200

### Switzerland

Lonza Ltd Muenchensteinerstrasse 38 4002 Basel Tel +41 61 316 81 11

Review and follow all product safety instructions. All product information corresponds to Lonza's knowledge on the subject at the date of publication, but Lonza makes no warranty as to its accuracy or completeness and Lonza assumes no obligation to update it. Product information is intended for use by recipients experienced and knowledgeable in the field, who are capable of and responsible for independently determining the suitability of ingredients for intended uses and to ensure their compliance with applicable law. Proper use of this information is the sole responsibility of the recipient. This information relates solely to the product as an ingredient. It may not be applicable, complete or suitable for the recipient's finished product or application; therefore republication of such information or related statements is prohibited. Information provided by Lonza is not intended and should not be construed as a license to operate under or a recommendation to infringe any patent or other intellectual property right. No claims are made herein for any specific intermediate or end-use application.

© 2017 Lonza

## www.lonzapreservation.com www.lonza.com/personalcare