Personal Care

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 Europe, there are restrictions in using Salicylic Acid in products for children under the age of 3.*

† 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.

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

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.

Make-Up Remover

pH: 5.15
% water: 90%; A_w: 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	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	9.0x10	<10	<10	<10	2.0x10	<10	<10	<10
K. pneumoniae + E. gergoviae	$5.3x10^3$	<10	<10	<10	4.0x10	<10	<10	<10
P. aeruginosa + B. cepacia	$3.3x10^5$	$1.8x10^6$	$1.4x10^6$	$7.7x10^6$	1.0x10	<10	<10	<10
C. albicans	$1.8x10^4$	$1.9x10^4$	$1.2x10^4$	$1.5x10^4$	<10	<10	<10	<10
Mixed molds	$1.5x10^4$	$2.4x10^4$	$1.1x10^4$	$7.0x10^4$	<10	<10	<10	<10

Hair Conditioner

pH: 3.9
% water: 73.7%; A_w: 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%

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	$3.5x10^5$	<10	<10	<10	<10	<10	<10	<10
K.pneumoniae + E. gergoviae	$9.4x10^5$	$3.4x10^5$	$2.6x10^8$	$3.5x10^6$	<10	<10	<10	<10
P. aeruginosa + B. cepacia	$4.9x10^5$	$>10^6$	$3.0x10^8$	<10	$2.0x10^2$	<10	<10	<10
C. albicans	$3.3x10^5$	$3.3x10^6$	$2.7x10^6$	$2.8x10^7$	6.0x10	<10	<10	<10
Mixed molds	$2.1x10^4$	$3.5x10^3$	$1.2x10^3$	$1.4x10^4$	<10	<10	<10	<10

Make-Up Remover

pH: 8.1
% water: 44%; A_W: 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 Challenge			Rechallenge
	24 hrs	7 days	28 days	28 days	24 hrs	7 days	28 days	28 days
S. aureus	$1.0x10^2$	<10	<10	<10	<10	<10	<10	<10
K. pneumoniae + E. gergoviae	$5.1x10^6$	$8.0x10^6$	$2.5x10^6$	$8.0x10^5$	<10	<10	<10	<10
P. aeruginosa + B. cepacia	$4.5x10^6$	$6.6x10^5$	$1.5x10^6$	$3.2x10^6$	<10	<10	<10	<10
C. albicans	$4.0x10^2$	<10	<10	<10	<10	<10	<10	<10
Mixed molds	$1.1x10^4$	$2.5x10^4$	$2.0x10^4$	$1.0x10^5$	<10	<10	<10	<10

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

pH: n/a
% water: 75%; A_W: 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	$8.6x10^4$	<10	<10	<10	<10	<10	<10	<10
K. pneumoniae + E. gergoviae	$5.6x10^4$	<10	<10	<10	<10	<10	<10	<10
P. aeruginosa + B. cepacia	$3.1x10^4$	$2.9x10^3$	<10	$3.4x10^5$	<10	<10	<10	<10
C. albicans	$4.6x10^4$	$1.3x10^4$	$2.9x10^3$	$5.3x10^4$	<10	<10	<10	<10
Mixed molds	$1.2x10^4$	$9.7x10^3$	$7.0x10^3$	$3.4x10^5$	<10	<10	<10	<10

Lotion (Lot# KKL-1446)

pH: 7.85
% water: 89%; A_W: 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	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	$1.3x10^6$	$1.6x10^4$	$3.0x10^4$	$8.0x10^3$	7.0x10	<10	<10	<10
K. pneumoniae + E. gergoviae	$1.3x10^6$	$9.5x10^5$	$7.0x10^5$	$2.3x10^3$	2.0x10	<10	<10	<10
P. aeruginosa + B. cepacia	$>10^6$	$8.5x10^6$	$4.3x10^7$	$9.8x10^7$	<10	<10	<10	<10
C. albicans	$1.1x10^5$	$1.0x10^5$	$9.0x10^5$	$1.5x10^5$	$8.7x10^3$	<10	<10	<10
Mixed molds	$2.3x10^6$	$9.0x10^4$	$1.6x10^4$	$7.0x10^4$	$1.8x10^3$	<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

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