



Product Information

Geogard[®] ULTRA

Multifunctional specialty additive for cosmetics and toiletries.

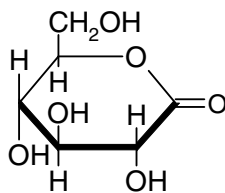
I. Preservation

- Naturally-derived product
- Broad spectrum protection
- Globally accepted

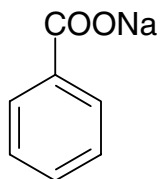
II. Moisturization

- Improves skin moisture content
- General Recognized as Safe (GRAS) ingredients
- Exceptional toxicity profile, long history of use, non-sensitizing and non-irritating.
- Broad compatibility with cosmetic ingredients
- No animal testing, non GMO.

1. Active matter



75% D-Glucono-1,5-Lactone



25% Sodium Benzoate

- 1.1 CAS No.:
D-Glucono-1,5-Lactone : CAS# 90-80-2
Sodium Benzoate: CAS# 532-32-1
- 1.2 EINECS No.:
D-Glucono-1,5-Lactone : CAS#202-016-5
Sodium Benzoate: CAS#208-534-8
- 1.3 UN No.: not applicable
- 1.4 INCI-Name: Gluconolactone (and) Sodium Benzoate

2. Specifications

2.1	Gluconolactone,%	70 – 80
2.2	Sodium Benzoate,%	22 – 28
2.3	Water, wt%	1 Max.

3. Properties

3.1	Appearance	Free flowing, white powder
3.2	Activity	99%
3.3	Odor	Mild
3.4	Bulk Density (20°C)	0.74 g/cc
3.5	Flash point	Not applicable
3.6	Freezing point	Not applicable
3.7	Solubility	Water soluble
3.8	Compatibility	Broadly compatible with personal care ingredients

4. Registrations

North America

Geogard Ultra is acceptable for both rinse-off and leave-on applications.

Asia/Japan

Geogard Ultra ingredients are allowed in Japan according to the comprehensive licensing standards of cosmetics and the Ministry of Health & Welfare.

Europe

Gluconolactone is a proven moisturizer. Sodium Benzoate is a well-established, traditional preservative and is approved for leave-on and rinse-off products up to 0.5% (acid). For other purposes than preservation, Sodium Benzoate may also be added to cosmetic products in higher concentration.

5. Efficacy

Moisturizing Cream

<i>Raw Material</i>	<i>% W/W</i>
Water, deionized	q.s
Glyceryl Tricaprate	2.00
Sorbitan Stearate	2.00
PEG Stearate	1.50
Glyceryl Stearate	2.00
Decaglyceryl Stearate	5.00
UV absorber	2.00
Thickener	2.00
Preservative	quantity varied
Total:	100.00

Bacterial Counts (CFU/gram)

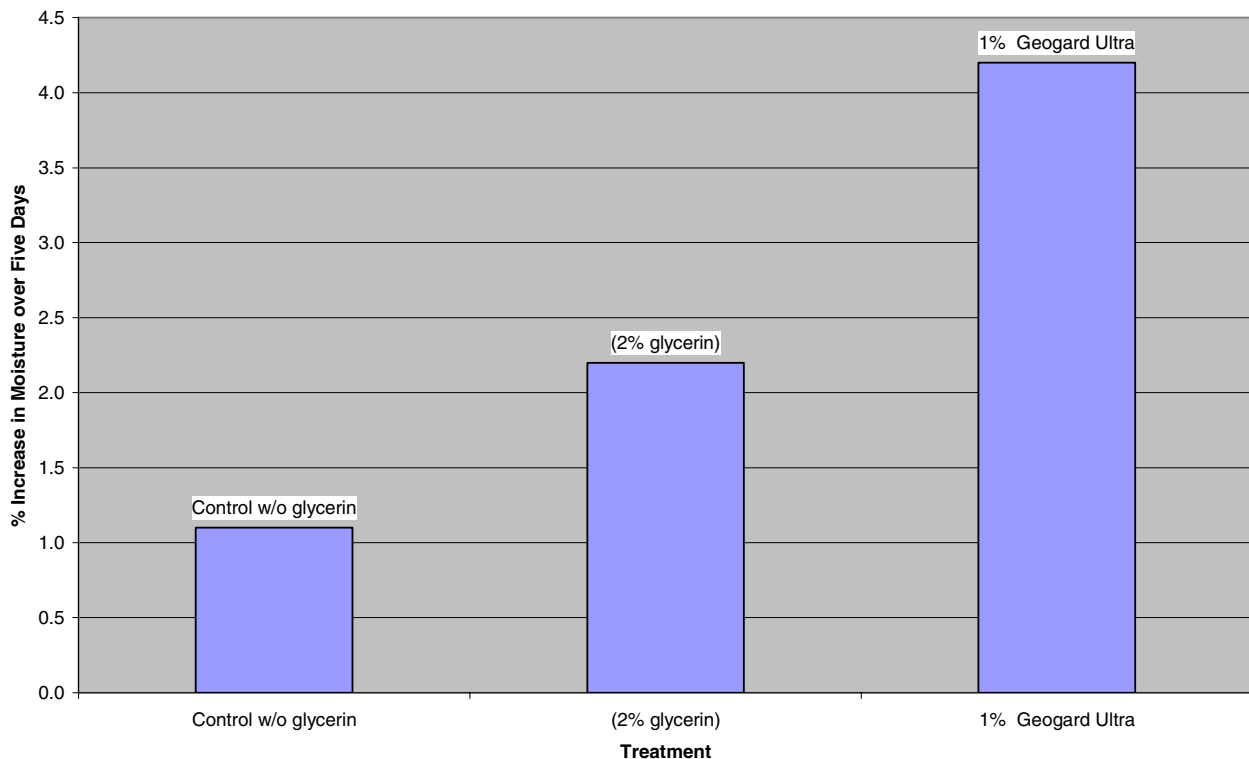
<u>Sample #</u>	<u>Test Samples</u>	<u>Day 0</u>	<u>Day 7</u>	<u>Day 14</u>	<u>Day 28</u>
1	Unpreserved Moisturizer	$1-3 \times 10^6$	$>3 \times 10^6$	$>33 \times 10^6$	$>3 \times 10^6$
2	Moisturizer w/ 1.0% Geogard Ultra	$1-3 \times 10^6$	< 10	< 10	< 10

Fungal Counts (CFU/gram)

3	Unpreserved Moisturizer	$1-3 \times 10^5$	$1-3 \times 10^4$	$1-3 \times 10^5$	$1-3 \times 10^5$
4	Moisturizer w/ 1.0% Geogard Ultra	$1-3 \times 10^5$	8×10^1	<10	<10

There is also a moisturization benefit on the skin with the Geogard Ultra. In the same moisturizing cream formulation used to demonstrate preservative efficacy, the Geogard Ultra produced a quantitative moisturization benefit to the skin. Over a period of time, the Geogard Ultra produced a moisturizing effect that was comparable to the use of 2 percent glycerin.

Average Moisturizing Effect on 9 Subjects over Five Days



Protein Shampoo

<i>Raw Material</i>	<i>%W/W</i>
Water, deionized	q.s
Sodium Lauryl Ether Sulfate	15.0
Triethanolamine Lauryl Sulfate	10.0
Cocomide DEA	3.0
Anhydrous Protein	1.0
50% Aqueous Citric acid	pH adjuster
Preservative	quantity varied
Total	100.00

Bacterial Counts (CFU/gram)

<u>Sample #</u>	<u>Test Samples</u>	<u>Day 0</u>	<u>Day 7</u>	<u>Day 14</u>	<u>Day 28</u>
1	Unpreserved Shampoo	7.2×10^6	4.0×10^8	3.39×10^8	1.2×10^7
2	Shampoo w/ 1.5% Geogard Ultra	6.6×10^6	< 10	< 10	< 10

Fungal Counts (CFU/gram)

3	Unpreserved Shampoo	1.2×10^6	4.9×10^6	7.1×10^4	2.1×10^5
4	Shampoo w/ 1.5% Geogard Ultra	1.6×10^5	<10	<10	<10

Hair Conditioners

<i>Raw Material</i>	<i>% W/W</i>
Water, deionized	q.s
Glycosperse 0-20 – Polysorbate 20	0.5
Lecithin - Alcolec F100	1.0
Distearyldimonium Chloride (Varisoft TA 100)	2.0
Cetyl Alcohol - CO-1695	2.1
Cearyl Alcohol -TA-1618	1.5
Ethospense LA-4 - POE 4 Laurly Alcohol	3.1
10% Aqueous Sodium Hydroxide	pH adjuster
Preservative	quantity varied
Total:	100.00

Bacterial Counts (CFU/gram)

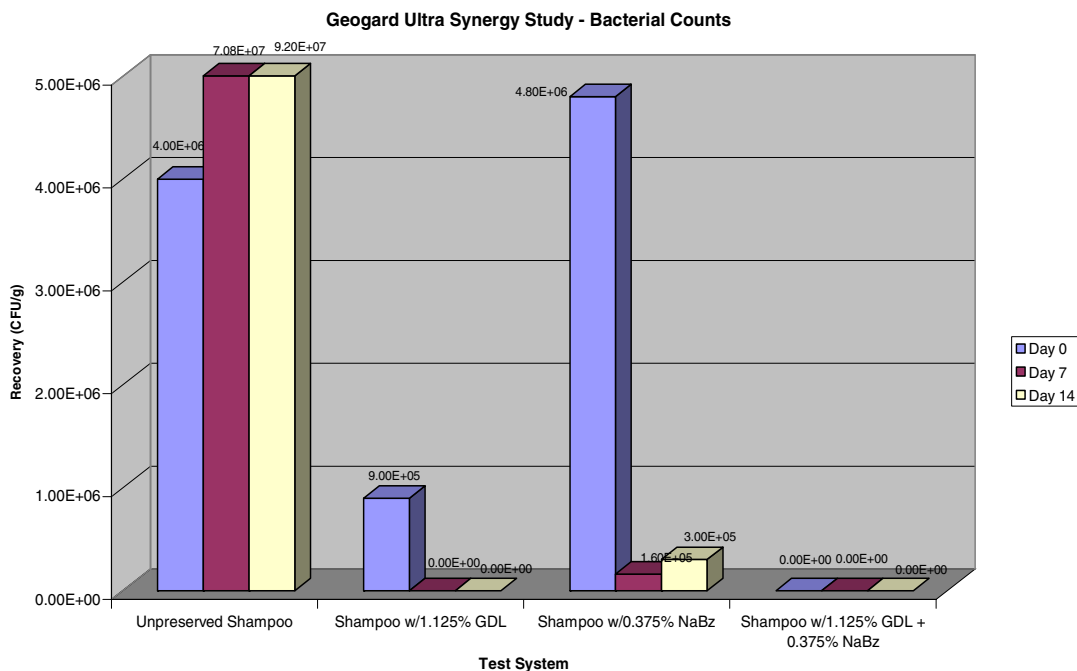
<u>Sample #</u>	<u>Test Samples</u>	<u>Day 0</u>	<u>Day 7</u>	<u>Day 14</u>	<u>Day 28</u>
1	Unpreserved Conditioner	7.2×10^6	4.0×10^8	3.39×10^8	1.2×10^7
2	Conditioner w/ 1.0% Geogard Ultra	6.6×10^6	< 10	< 10	< 10

Fungal Counts (CFU/gram)

3	Unpreserved Shampoo	4.2×10^6	1.8×10^7	8.3×10^5	3.7×10^5
4	Conditioner w/ 1.0% Geogard Ultra	4.1×10^4	2.0×10^2	<10	<10

Geogard Ultra Synergy Study

While both the Gluconolactone and the Sodium Benzoate are effective individually, the graph below demonstrates higher efficacy due to the synergy between Gluconolactone and the Sodium Benzoate contained in the Geogard Ultra.



6. Other investigations

Information available upon request.

7. Use areas

Geogard Ultra is compatible in a diverse range of natural based product formulations, for example:

Hair Care	Shampoos, Conditioners, Rinses
Skin Care	Liquid Soaps, Shower Gels, Sensitive Skin Lotions, Moisturizers, Cold Creams
Sun Products	Sunscreen Lotions and Creams
Raw Materials	Surfactants, Shampoo Blends, Conditioner Blends

Geogard Ultra is typically used at 0.75% to 2.0% in both rinse-off and leave-on product formulations.

8. Formulating Recommendations

Geogard Ultra is fully compatible with a wide variety of formulation ingredients as well as most types of cationic, nonionic and anionic systems. Geogard Ultra can be used effectively over a wide pH range of 3 to 7 and can be added at both room and elevated temperatures.

Solubility

Geogard Ultra diluted five percent in the following solvents:

Solvent	Soluble/Insoluble
Water	Soluble
Propylene Glycol	Soluble
Glycerin	Soluble
Ethanol	Insoluble
Mineral Oil	Soluble
Vegetable Oil	Insoluble
Silicone (Dimethicone)	Insoluble
Alkyl Sulfates	Dispersible

Stability:

Geogard Ultra is a uniform, white powder which is very stable over time.

9. Analytical procedure

Contact Lonza Technical Service – 800-365-8324 in the USA
Contact Lonza Technical Service – 00 4161316 8435 in Europe

10. Packaging / Storage

The product is supplied in plastic pails holding 15.9 kg net. (35 lbs) net
Geogard Ultra can be stored for one year in the sealed original packaging under normal temperature conditions.

11. Regulatory information

refer to MSDS

12. Toxicological information

refer to MSDS

13. Ecological and Ecotoxicological Information

refer to MSDS

The information contained herein is believed to be correct and corresponds to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.