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Material Safety Data Sheet

According to EU Regulation 1907/2006 in the current version

GLUCONO DELTA LACTONE

1. Identification of the substance/preparation and the company

Trade name:	Glucono delta lactone
Utilization:	Raw material for cosmetic formulations
Supplier company identification:	**Elemental SRL**, Piata Cazarmii no.15, 410188-Oradea, jud.Bihor, Romania Tel/Fax: +40259-436.755, www.elemental.eu
Emergency:	RO: numar national pentru cazuri de urgenta: 021 3183606 Institutul de Sanatate Publica Bucuresti. International emergency number: +49 180 2273-112

2. Hazards Identification

2.1 Classification of the substance or mixture
Classification (REGULATION (EC) No 1272/2008)
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
Classification (67/548/EEC, 1999/45/EC)
Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.
2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
The product does not need to be labelled in accordance with EC directives or respective national laws.
2.3 Other hazards
Additional advice: According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified.

3. Composition / Information on ingredients

3.1.Substance:
Glucono-delta-Lactone 100% No dangerous ingredients according to Regulation (EC) No. 1907/2006
Formula C6-H10-O6
Nr. CAS: 90-80-2
Nr.CE: 202-016-5
Nr. REACH: 01-2119451153-49-0000
3.2.Mixture: Not applicable

4. First Aid

4.1 Description of first aid measures
General advice : Get medical advice/ attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
If inhaled : If breathed in, move person into fresh air.
In case of skin contact : Wash off with soap and water.
In case of eye contact : Remove contact lenses.
Immediately flush eye(s) with plenty of water.
If swallowed : Drink plenty of water. Do NOT induce vomiting.
4.2 Most important symptoms and effects, both acute and delayed
4.3 Indication of any immediate medical attention and special treatment needed

5. Fire-fighting Measures

5.1 Extinguishing media
Suitable extinguishing media : Water, Water spray, Dry chemical, Foam, Carbon dioxide (CO2)

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5.2 Special hazards arising from the substance or mixture
Specific hazards during fire fighting: Do not use a solid water stream as it may scatter and spreadfire.
Hazardous decomposition products formed under fire conditions.
Exposure to decomposition products may be a hazard to health.
5.3 Advice for firefighters
Special protective equipment for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary.
Use personal protective equipment.
Further information: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire and/or explosion do not breathe fumes.

6. Accidental release measures:

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions: Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation, especially in confined areas.
6.2 Environmental precautions
Environmental precautions: Prevent further leakage or spillage if safe to do so. No special environmental precautions required.
6.3 Methods and materials for containment and cleaning up
Methods for cleaning up: Pick up and transfer to properly labelled containers. After cleaning, flush away traces with water.
6.4 Reference to other sections --

7. Handling and Storage

7.1 Precautions for safe handling
Advice on safe handling: Avoid creating dust. Do not breathe dust.
Avoid contact with skin and eyes. Advice on protection against fire and explosion: Normal measures for preventive fire protection. Dust explosion class : St1
7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers: Keep containers tightly closed in a dry, cool and wellventilated place.
Keep in an area equipped with acid resistant flooring. Store in original container.
Advice on common storage: No special restrictions on storage with other products.
Other data: No decomposition if stored and applied as directed.
7.3 Specific end uses --

8. Exposure Controls and Personal Protection

8.1 Control parameters
8.2 Exposure controls
Engineering measures Provide adequate ventilation.
Personal protective equipment
Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter. Half mask with a particle filter P2 (EN 143).
Hand protection : Rubber gloves Break through time: > 480 min
Eye protection: Safety glasses
Skin and body protection : Lightweight protective clothing
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Do not breathe dust. Avoid contact with skin, eyes and clothing.

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Environmental exposure controls
General advice: Prevent further leakage or spillage if safe to do so.
No special environmental precautions required.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
Appearance : Crystalline powder
Colour : white
Odour : slight
Flash point : not applicable
Autoignition temperature : > 200 °C
Molecular Weight : 178,15 g/mol
pH : ca. 2,6 at 1 % Method: 2h (as aqueous solution)
Melting point/range : 153 - 155 °C
Bulk density : 600 - 1.000 kg/m3
Density: 1.720 g/cm3 (20 °C)
Vapour pressure: < 0,00001 hPa (25 °C)
Water solubility : ca. 587 g/l at 20 °C
Partition coefficient: noctanol/water: log Pow: = -1,98 Calculation
Autoignition temperature: > 200 °C
Thermal decomposition: > 150 °C
Viscosity, dynamic: No information available.
Explosive properties: No information available.
Oxidizing properties: No information available.
Molecular weight: 178,15 g/mol
9.2 Other information

10. Stability and Reactivity

10.1 Reactivity
No decomposition if stored and applied as directed.
10.2 Chemical stability
Stable under normal conditions.
10.3 Possibility of hazardous reactions
Hazardous reactions : None known.
10.4 Conditions to avoid
Conditions to avoid : Protect from moisture.
10.5 Incompatible materials
Materials to avoid : not applicable
10.6 Hazardous decomposition products
Hazardous decomposition products: No decomposition if stored normally.
Thermal decomposition can lead to release of irritating gases and vapours.
Thermal decomposition : > 150 °C

11. Toxicological Information

11.1 Information on toxicological effects
Acute toxicity
Acute oral toxicity

Glucono-delta-lactone: LD50: 6.060 mg/kg Species: rat
Method: OECD Test Guideline 401
Test substance: Potassium Gluconate
Acute dermal toxicity
Glucono-delta-lactone: LD50: > 2.000 mg/kg
Species: rat
Method: OECD Test Guideline 402
Test substance: Gluconic Acid
Skin corrosion/irritation
Skin irritation
Glucono-delta-lactone: Species: rabbit
Result: No skin irritation
Method: OECD Test Guideline 404
Test substance: Gluconic Acid
Serious eye damage/eye irritation
Eye irritation
Glucono-delta-lactone: Species: rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
Test substance: Gluconic Acid
Respiratory or skin sensitization
Sensitisation
Glucono-delta-lactone: Species: mouse
Result: Did not cause sensitization on laboratory animals.
Method: OECD Test Guideline 429
Test substance: Gluconic Acid
Germ cell mutagenicity
Assessment
Glucono-delta-lactone: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Carcinogenicity
Assessment
Glucono-delta-lactone: Did not show carcinogenic or teratogenic effects in animal experiments.
Reproductive toxicity
Assessment
Glucono-delta-lactone: No toxicity to reproduction
Target Organ Systemic Toxicant - Repeated exposure
Glucono-delta-lactone: Species: rat
Application Route: Oral
Lowest observable effect level: 250 mg/kg
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 408

12. Ecological Information

12.1 Toxicity
Toxicity to fish
Glucono-delta-lactone: NOEC: = 100 mg/l
Exposure time: 96 h
Species: Oryzias latipes (Orange-red killifish)
semi-static test

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Test substance: Sodium gluconate
Method: OECD Test Guideline 203
LC50: > 100 mg/l
Exposure time: 96 h
Species: Oryzias latipes (Orange-red killifish)
semi-static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 203
LC50: 360 mg/l
Exposure time: 48 h
Species: Fish
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates.
Glucono-delta-lactone: EC50: > 1.000 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 202
Toxicity to algae
Glucono-delta-lactone: EC0: <= 100 mg/l
Exposure time: 72 h
Species: Desmodesmus subspicatus (green algae)
static test
Test substance: Sodium gluconate
Method: OECD Test Guideline 201
Toxicity to bacteria
Glucono-delta-lactone: NOEC: 100 mg/l
Exposure time: 3 h
Respiration inhibition of activated sludge
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 209
EC50: 649,8 mg/l
Exposure time: 3 h
Respiration inhibition of activated sludge
Test substance: Glucono-delta-lactone
Method: OECD Test Guideline 209
12.2 Persistence and degradability
Biodegradability
Glucono-delta-lactone: Zahn-Wellens Test
Result: Inherently biodegradable
Exposure time: 3 d
Test substance: Sodium gluconate
Method: OECD Test Guideline 302
Result: Readily biodegradable.
Exposure time: 28 d
Test substance: Sodium gluconate
Method: OECD Test Guideline 301D anaerobic
Result: 100% anaerobically biodegradable

Exposure time: 35 d
Test substance: Sodium gluconate
Method: OECD Test Guideline 311
Biochemical Oxygen Demand (BOD)
Glucono-delta-lactone: 698 mg/g
Chemical Oxygen Demand (COD)
Glucono-delta-lactone: 987 mg/g
12.3 Bioaccumulative potential
Bioaccumulation: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.
12.4 Mobility in soil
12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
12.6 Other adverse effects
Additional ecological information: Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

13. Disposal Considerations

13.1 Waste treatment methods
Product : Where possible recycling is preferred to disposal or incineration. Can be landfilled, when in compliance with local regulations. Waste codes should be assigned by the user based on the application for which the product was used. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

14.1 UN number ADR/RID: - IMDG: - IATA: - Not regulated for transport
14.2 UN proper shipping name
ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods
14.3 Transport hazard class(es) ADR/RID: - IMDG: - IATA: -
14.4 Packaging group ADR/RID: - IMDG: - IATA: -
14.5 Environmental hazards ADR/RID: no IMDG Marine pollutant: no IATA: no
14.6 Special precautions for user: For information on handling, see section 7. For information on personal protective equipment, see section 8. For information on disposal, see section 13.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
IBC code : Not defined.

15. Additional Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulations
Major Accident Hazard Legislation 96/82/EC Directive 96/82/EC does not apply
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC: not regulated
Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals: not regulated
Seveso III: Directive 2012/18/UE: not applicable

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15.2 Chemical Safety Assessment: For this product a chemical safety assessment was carried out.

16. Other Information

Disclaimer:
This material safety data sheet does not constitute a guarantee of the properties of the product and is not a contractual legal report. The information is given in good faith on the basis of our best knowledge of the product at the indicated time. However, we cannot accept responsibility or liability for any consequences arising from its use, no warranty for correctness and completeness is given. We caution the users against the incurred possible risks when the product is used at other ends than the use for which it was initially planned. It is the user's responsibility during handling, storage and product use to consult the main regulatory texts in force regarding workers and environment protection.

Abreviations:
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS: Chemical Abstracts Service (division of the American Chemical Society).
CLP: Classification, Labeling, Packaging.
DNEL: Derived No Effect Level.
EINECS: European Inventory of Existing Commercial Chemical Substances.
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG: International Maritime Code for Dangerous Goods.
INCI: International Nomenclature of Cosmetic Ingredients.
LTE: Long-term exposure.
PNEC: Predicted No Effect Concentration.
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE: Short-term exposure.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.