

SAFETY DATA SHEET

Natural Gamma-Dodecalactone

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Complying with 1907/2006/EEC Regulation of 18 December 2006 ("REACH Regulation") and REGULATION (EC) No 1272/2008 (CLP)

Section 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier****Product name:** Natural Gamma-dodecalactone**Chemical name (e.g. IUPAC name):** Gamma-n-octyl-gamma-n-butyrolactone**Synonyms:** Dodecanolide-1,4; gamma-n-Octyl-gamma-n-butyrolactone;**Trade Name:** Gamma-dodecalactone **Natural****Chemical formula:** C₁₂H₂₂O₂**Product type:** Liquid**CAS number:** 2305-05-7**EC number:** 218-971-6**Product code:** 81173**1.2 Relevant identified uses of the substance or mixture and uses advised against****Common/important uses of the substance/preparation:**

In many fragrances and fruit flavors.

1.3 Details of the supplier of the safety data sheet**Company/undertaking identification**

Aromor Flavors & Fragrances Ltd.

Kibbutz Givat-Oz 19225

Israel

Tel: +972-4-6524900/1

Fax: +972-4-6425052

E-mail address of person responsible for this SDS: mrkt@aromor.com**1.4 Emergency telephone number****Emergency telephone number (including hours of operation):****Section 2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****Classification in accordance to Regulation(EC) No. 1272/2008 (CLP/GHS)**

Product name	GHS Classification
Natural Gamma-dodecalactone	Eye Irrit. 2 ; H319 Skin Irrit. 2 ; H315 STOT SE 3 ; H335

Classification according to Directive 67/548/EEC (DSD) or 1999/45/EC

Product name	EU Classification
Natural Gamma-dodecalactone	- N/A -

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2.2 Label elements

Labeling in accordance with Regulation 1272/2008 (CLP)

Hazard pictograms:

Signal word: Warning



Hazard statements:

Causes skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

Precautionary Statements:

P262: Do not get in eyes, on skin, or on clothing.

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

2.3 Other hazard

Substance meets the criteria for BBT according to Regulation (EC) No. 1907/2006, Annex XIII:

Not applicable

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII:

Not applicable

Other hazard which do not result in classification:

Not applicable

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation:

Product/ Ingredient name	Identifiers	%	ELINCS Classification	GHS Classification
Natural Gamma-dodecalactone	CAS number: 2305-05-7 EC number: 218-971-6	100	Not Listed on inventory	Eye Irrit. 2 ; H319 Skin Irrit. 2 ; H315 STOT SE 3 ; H335

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in section 8.

See section 16 for the full text of the H-statements and R-phrases declared above.

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Section 4. FIRST AID MEASURES

4.1 Description of first aid measures

- Eyes contact:** In case of contact with eyes rinse thoroughly with plenty of water for at least 15 minutes and seek medical advice
- Skin contact:** In case of contact with skin wash off immediately with soap and plenty of water, and seek medical advice.
- Inhalation:** Remove the casualty into fresh air and keep him calm. Apply artificial respiration if necessary and get medical attention immediately.
- Ingestion:** Wash mouth thoroughly with plenty of water and give water to drink. Do not induce vomiting. Never give anything by mouth to unconscious person. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Inhalation: May be harmful by inhalation. Irritating to respiratory system. May be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful by ingestion.

Skin contact: May be harmful by skin absorption. May cause allergic skin reaction.

Eyes contact: Irritating to eyes.

Over-exposure sign/symptoms:

Eyes contact: N/A

Inhalation: N/A

Ingestion: N/A

Skin contact: N/A

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote, medical staff contacts Poisons Information Center. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Special treatments: No specific treatment

Section 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: For small fires, use dry chemical, carbon dioxide or alcohol-resistant foam. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray.

Not suitable: Solid streams of water may be ineffective.

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5.2 Special hazards arising from the substance or mixture

Hazardous thermal decomposition products: Under fire – carbon oxides (CO, CO₂) and toxic fumes.

5.3 Advice for firefighters

Special protective equipment for fire fighters: Fire fighters should wear full protective clothing and self-contained breathing apparatus in positive pressure mode.

Remark: Move containers from fire area if possible to do so without risk. Cool all affected containers with flooding quantities of water.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing. Ventilate area of spill.

6.2 Environmental precautions

Keep away from drains, surface and groundwater and soil.

6.3 Methods and materials for containment and cleaning up

Small spill: Absorb the chemical onto sand, vermiculite, or any other non-combustible absorbent, and collect into containers for later disposal.

Large spill: As for small spill

Personal Protection in Case of Large Spill: Safety glasses. Full suit. Suitable respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product.

6.4 Reference to other sections

See Sections 1 for emergency contact information

See Section 8 for information on a appropriate personal protective equipment

See Section 13 for additional waste treatment information

Section 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling: Do not breathe vapor. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

Hygiene Measures: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also section 8 for additional information measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage: Keep containers tightly closed, in dry, cool and well-ventilated place. Protect from light. Keep away from heat, sparks and open flame. Do not store together with strong oxidizing agents. Containers

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should be nitrogen capped after use since oxygen and moisture absorption can cause flavor/odor deterioration. Shelf life: 12 month.

Packaging materials Recommended: Use original container.

7.3 Specific end use(s): N/A

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values: N/A

Derived effects levels:

Recommended occupational and consumer exposure limit values (following from the preformed CSA): N/A

8.2 Exposure controls

Engineering Measures

Use process enclosures, local exhaust ventilation, or others engineering controls to keep airborne levels below recommend exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Person Protective measures

Occupational exposure controls:

Respiratory protection: Suitable respirator. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.

Eye/face protection: Wear chemical safety goggles.

Skin protection:

Hand protection: Wear compatible chemical resistant gloves.

Other: Wear appropriate long-sleeved clothing to minimize skin contact.

Hygiene measures: Keep away from foodstuffs and beverages. Do not eat, drink or smoke during work time. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream. During use, provide suitable ventilation.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: Colorless to pale yellow liquid

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Odour: Sweet, fruity, musky, peach-like, pear-like odor
Odour threshold: N/A
pH: N/A
Freezing point: 17-18 °C
Initial boiling point/boiling range: 130-132 °C
Flash point: 110°C
Evaporation rate: N/A
Flammability: N/A
Upper/lower flammability or explosive limits: N/A
Vapor pressure: N/A
Vapor density: N/A
Relative Density: 0.933-0.943 g/ml at 25 °C
Solubility(ies): N/A
Partition coefficient Octanol/Water: N/A
Auto-ignition temperature: N/A
Decomposition temperature: N/A
Viscosity: N/A
Explosive properties: N/A
Oxidizing properties: N/A

9.2 Other information:

Molecular weight: 198.31 g/mol
Refractive index: 1.450-1.456 at 20 °C

Section 10: STABILITY AND REACTIVITY

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients

10.2 Chemical stability

The product is stable under normal handling and storage conditions described in Section 7.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Heat, sparks and open flame.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous Decomposition products:

Under fire - carbon oxides (CO, CO₂) and toxic fumes.

Section 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: N/A

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Irritation and corrosivity:

Inhalation: May be harmful by inhalation. Irritating to respiratory system. May be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful by ingestion.

Skin contact: May be harmful by skin absorption. May cause allergic skin reaction.

Eyes contact: Irritating to eyes.

Sensitization: N/A

Chronic toxicity:

Carcinogenicity: N/A

Mutagenicity: N/A

Reproductive toxicity: N/A

Specific target organ toxicity (single exposure): N/A

Specific target organ toxicity (repeated exposure): N/A

Aspiration hazard: N/A

Other effects

Over exposure signs/symptoms: N/A

Target organs: N/A

Section 12: ECOLOGICAL INFORMATION

12.1 Toxicity: N/A

12.2 Persistence and Degradability: N/A

12.3 Bioaccumulative potential: N/A

12.4 Mobility in soil

Soil/water partition coefficient (Koc) : N/A

12.5 Results of PBT and vPvB assessment

Not available

12.6 Other adverse effects

Substances which have an unfavorable influence on the oxygen balance and can be measured using parameters such as BOD, COD, etc.: N/A

Substances, which contribute to eutrophication: N/A

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Section 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Methods of disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Hazardous waste: N/A

Section 14: TRANSPORT INFORMATION**International transport regulations**

Regulatory Information	14.1 UN number	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazard	14.6 Special precautions for user	Additional information
ADR/RID Class	-	-	-	-	-	-	-
ADNR Class	-	-	-	-	-	-	-
IMDG class	-	-	-	-	-	-	-
IATA class	-	-	-	-	-	-	-

14.7 Transport to bulk according to Annex II of MARPOL 79/78 and the IBC Code

Not applicable

Section 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use

EU Regulation (EC) No.1907/2006 (REACH), No 1272/2008 (CLP)

15.2 Chemical safety assessment

In accordance with REACH article 14, a Chemical Safety Assessment has been carried out for this substance.

Section 16: OTHER INFORMATION**Full text of R-phrases referred to in sections 2 and 3:**

R36/37/38: Irritating to eyes, respiratory system and skin.

Safety phrases:

S24/25: Avoid contact with skin and eyes.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Full text of Hazards Statements referred to in sections 2 and 3:

H315: Causes skin irritation.

H319: Causes serious eye irritation.

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H335: May cause respiratory irritation.

Precautionary Statements:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P262: Do not get in eyes, on skin, or on clothing.

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

Training advice: Before using/handling the product one must read carefully present MSDS.

Recommended restriction: N/A

Key Legend Information:

ACGIH- American Conference of Governmental Industrial Hygienists

OSHA- Occupational Safety and Health Administration

NTP- National Toxicology program

IARC- International Agency for Research on Cancer

ND- Not Determined

N/A- Not available

R-phrases- Risk phrases

S-phrases- Safety phrases

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To the best of our knowledge the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.