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Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)
Classifications according to Regulation (EC) No 1272/2008.
Printdate 12 Feb 2024

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product name:

gamma-Butyrolactone

1.1. Catalog No.:

687537

1.2. Relevant identified uses of the substance or mixture

Identified: Laboratory chemical
uses: R&D

1.3. Uses advised against:

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1.4. Emergency telephone number

HPC Standards Tel. +49 34291 3372-36
This number is only available during office hours.

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 4), H302
Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

2.2. Label elements

2.2.1. Pictogram

2.2.2.

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram Signal word Danger Hazard statement(s)
H302 Harmful if swallowed.

H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
Precautionary statement(s)
P280 Wear eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P305 + P351 + P338 +
P310
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
Supplemental Hazard
Statements
none
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Formula : C4H6O2
Molecular weight : 86,09 g/mol
CAS-No. : 96-48-0
EC-No. : 202-509-5
Component Classification Concentration
?-Butyrolactone
Acute Tox. 4; Eye Dam. 1;
STOT SE 3; H302, H318,
H336
<= 100 %

3.1.1. Formula

C4H6O2

3.1.2. Molecular Weight (g/mol)

86.09

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3.1.3. CAS-No.

96-48-0

4. FIRST AID MEASURES

4.1 Description of first-aid measures
General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.
Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. 4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture
Carbon oxides
5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.
6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Discharge into the environment must be avoided.
6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13

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7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
For precautions see section 2.2.
7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.
Recommended storage temperature 2 - 8 °C
Hygroscopic.
7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance Form: liquid, clear
Color: colorless
b) Odor unpleasant
c) Odor Threshold No data available
d) pH 4 - 5 at 100 g/l at 20 °C
e) Melting Melting point: -45 °C point/freezing point
f) Initial boiling point
and boiling range
204,6 °C at 1.013 hPa
g) Flash point 98 °C - closed cup
h) Evaporation rate No data available
i) Flammability (solid,
gas)
No data available
j) Upper/lower
flammability or
explosive limits
Upper explosion limit: 16 %(V)
Lower explosion limit: 1,4 %(V)
k) Vapor pressure ca.0,34 hPa at 20 °C - (calculated)
3 hPa at ca.52 °C - Tested according to Directive 92/69/EEC.
l) Vapor density 2,97 - (Air = 1.0)
m) Relative density 1,13 g/cm3 at 20 °C - DIN 51757
n) Water solubility 1.000 g/l at 20 °C - OECD Test Guideline 105 - miscible in all proportions
o) Partition coefficient:
n-octanol/water
log Pow: -0,566 at 25 °C - OECD Test Guideline 107 -
Bioaccumulation is not expected.
p) Autoignition
temperature
435 °C
at 1.013,25 hPa - DIN 51794
q) Decomposition
temperature
No data available
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties No data available
9.2 Other safety information
Relative vapor

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density
2,97 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
No data available
10.5 Incompatible materials
Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents, Zinc, Plastics
10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - male and female - 1.582 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - > 5,1 mg/l
(OECD Test Guideline 403)
LD50 Dermal - Guinea pig - > 5.000 mg/kg
Remarks: (RTECS)
Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 20 h
Remarks: (ECHA)
Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye
(OECD Test Guideline 405)
Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)
Germ cell mutagenicity
OECD Test Guideline 477
Drosophila melanogaster - male
Result: negative
Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity
No data available Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available
Additional Information
Repeated dose toxicity - Rat - male - Oral - 90 d - NOAEL (No observed adverse effect level) - 225 mg/kg

(ECHA)
RTECS: LU3500000 an anesthetic effect on the central nervous system characterized by a loss of sensation., Preliminary excitement is the initial effect followed by relaxation, stupor, or sleep., Nausea, Dizziness, Headache
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Systemic effects:
Drowsiness, depressed respiration, Tiredness, Headache
After absorption of large quantities:
cardiovascular disorders, narcosis
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish static test LC50 - Lepomis macrochirus (Bluegill sunfish) - 56 mg/l - 96 h
(OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - > 500 mg/l - 48 h
(Directive 67/548/EEC, Annex V, C.2.)
Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - > 1.000 mg/l - 72 h
(DIN 38412)
Toxicity to bacteria static test IC50 - Tetrahymena pyriformis - 4.518 mg/l - 40 h
Remarks: (ECHA)
12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 14 d
Result: 95 % - Readily biodegradable.
(OECD Test Guideline 301C)
Biochemical Oxygen Demand (BOD)
1.160 mg/g
12.3 Bioaccumulative potential
No data available
12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Other adverse effects
Harmful to aquatic life.
Additional ecological information
Biological effects:
Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities Discharge into the environment must be avoided.
Adsorbed organic bound halogens
(AOX)
Remarks: Product does not contain any organic halogens

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
Contaminated packaging
Dispose of as unused product

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: - IMDG: - IATA: -
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
Further information
Not classified as dangerous in the meaning of transport regulations

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) 15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. For lab use only!