

n-Butyric anhydride

Version Revision Date: SDS Number: Date of last issue: -
1.1 05/04/2020 000000033673 Date of first issue: 06/03/2019

SECTION 1. IDENTIFICATION

Product name : n-Butyric anhydride

Product code : 000000000050000430

Manufacturer or supplier's details

Company name of supplier : Celanese Ltd. Irving Texas

Address : 222 West Las Colinas Boulevard Suite 900N
Irving TX TX 75039

Telephone : '+1 972-443-4000

E-mail address of person : HazCom@celanese.com
responsible for the SDS

Emergency telephone : DOMESTIC NORTH AMERICA: 800-424-9300 INTERNATIONAL,
number CALL +1 703-527-3887 (collect calls accepted)

Recommended use of the chemical and restrictions on use

Recommended use : Chemical intermediate

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 4

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Skin corrosion : Category 1B

Serious eye damage/eye irritation : Category 2A

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H227 Combustible liquid.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P260 Do not breathe dust or mist.
P264 Wash face, hands and any exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT

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induce vomiting.

P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P363 Wash contaminated clothing before reuse.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Hazardous components**

Chemical name	CAS-No.	Concentration (% w/w)
butyric acid	107-92-6	<= 2
butyric anhydride	106-31-0	>= 98

SECTION 4. FIRST AID MEASURES

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- General advice : Remove contaminated, soaked clothing immediately and dispose of safely
- Pay attention to own protection
- In any case show the physician the Safety Data Sheet
- If inhaled : Keep at rest.
- Move to fresh air.
- Call a physician or poison control centre immediately.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.
- Obtain medical attention.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Call a physician immediately.
- If swallowed : If conscious, drink plenty of water.
- If swallowed, do not induce vomiting - seek medical advice.
- Most important symptoms and effects, both acute and delayed : Vapours may cause irritation to the eyes, respiratory system and the skin.
- Respiratory disorder
- Notes to physician : Treat symptomatically
- In case of lung irritation, first treatment with dexametason aerosol (spray).
- In case of choking: gastroscopy inclusive of aspiration and acidosis compensation.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Foam
Dry chemical
Carbon dioxide (CO₂)
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Hazardous combustion products : Hazardous combustion products
Carbon oxides
Hazardous decomposition products due to incomplete combustion
- Further information : Use water spray to cool unopened containers.
- Special protective equipment for firefighters : Self-contained breathing apparatus (EN 133)

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid contact with the skin and the eyes.
Keep away from heat and sources of ignition.
Provide adequate ventilation.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.

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Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Local/Total ventilation : Use only with adequate ventilation.

Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition. Take measures to prevent the build up of electrostatic charge. Ground/bond container and receiving equipment.

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.

Keep container closed when not in use.

Conditions for safe storage : Keep in a dry, cool and well-ventilated place.

Store locked up.

Materials to avoid : Keep away from oxidizing agents, strongly acid or alkaline materials, as well as of amines, alcohols and water.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Engineering measures : Handle only in a place equipped with local exhaust (or other appropriate exhaust).

Use explosion-proof equipment.

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Personal protective equipment

Respiratory protection : Breathing apparatus only if aerosol or dust is formed.
Equipment should conform to EN 136 or EN 140 and EN 143.
Use NIOSH approved respiratory protection.

Filter type : Organic vapour type

Hand protection

Material : butyl-rubber

Break through time : 480 min

Glove thickness : 0.3 mm

Directive : Protective gloves complying with EN 374.

Manufacturer : Class 6

Material : butyl-rubber

Break through time : 480 min

Glove thickness : 0.7 mm

Directive : Protective gloves complying with EN 374.

Manufacturer : Class 6

Eye protection : Tightly fitting safety goggles

In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Equipment should conform to EN 166.

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Skin and body protection : Impervious clothing

Protective measures : Avoid contact with skin.
Do not breathe vapours or spray mist.
Ensure that eye flushing systems and safety showers are located close to the working place.

Hygiene measures : When using do not eat or drink.
Take off all contaminated clothing immediately.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : colourless

Odour : pungent

pH : 5.4

Melting point/range : -75 °C
(1,013 hPa)

Boiling point/boiling range : 198 °C
(1,013 hPa)

Flash point : 88 °C
Method: closed cup

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Upper explosion limit	:	5.8 %(V)
Lower explosion limit	:	0.9 %(V)
Vapour pressure	:	0.4 hPa (20 °C)
Relative vapour density	:	5.4
Density	:	0.966 - 0.967 g/cm ³ (20 °C)
Solubility(ies) Water solubility	:	hydrolyses
Partition coefficient: n- octanol/water	:	log Pow: 1.39 Calculation method
Molecular weight	:	158.19 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under normal conditions.
Chemical stability	:	No decomposition if used as directed. Decomposes on heating.
Possibility of hazardous reactions	:	Reacts violently with water. Amines and alcohols cause exothermic reactions.

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Conditions to avoid : Keep away from heat and sources of ignition.
Keep away from fire, sparks and heated surfaces.
Take action to prevent static discharges.

Incompatible materials : Amines
Bases
Alcohols

Hazardous decomposition products : Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Components:****butyric anhydride:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2200 ppm
Exposure time: 8 h
Remarks: The value is calculated

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation**Components:****butyric anhydride:**

Species: Rabbit

Result: irritating

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Serious eye damage/eye irritation**Components:****butyric anhydride:**

Species: Rabbit

Result: irritating

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****butyric anhydride:**

- | | | |
|---|---|---|
| Toxicity to fish | : | LC50 (<i>Oryzias latipes</i> (Japanese medaka)): 90 mg/l
Exposure time: 48 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (<i>Daphnia magna</i> (Water flea)): 61 mg/l
Exposure time: 48 h |
| Toxicity to algae | : | EC50 (<i>Desmodesmus subspicatus</i> (green algae)): 46.7 mg/l
Exposure time: 72 h |
| Toxicity to fish (Chronic toxicity) | : | LC50 (<i>Leuciscus idus</i> (Golden orfe)): 245 mg/l
Exposure time: 48 h
Method: DIN 38412 |
| Toxicity to microorganisms | : | EC50 (<i>Pseudomonas putida</i>): 875 mg/l
Exposure time: 16 h |

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Persistence and degradability**Components:****butyric anhydride:**

Biodegradability : Zahn-Wellens Test
Biodegradation: > 95 %
Exposure time: 5 d
Method: OECD Test Guideline 302B

Bioaccumulative potential**Components:****butyric anhydride:**

Bioaccumulation : Bioconcentration factor (BCF): 2.33
Remarks: The value is calculated

Mobility in soil

No data available

Other adverse effects**Components:****butyric anhydride:**

Results of PBT and vPvB assessment : The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with the European Directives on waste and hazardous waste.

The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

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Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No.	: UN 2739
Proper shipping name	: Butyric anhydride
Class	: 8
Packing group	: III
Labels	: Corrosive
Packing instruction (cargo aircraft)	: 856
Packing instruction (passenger aircraft)	: 852

IMDG-Code

UN number	: UN 2739
Proper shipping name	: Butyric anhydride
Class	: 8
Packing group	: III
Labels	: 8
EmS Code	: F-A, S-B
Marine pollutant	: no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

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National Regulations

SECTION 15. REGULATORY INFORMATION

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a

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guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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