

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name :  $\beta$ -Butyrolactone  
 Product code : B0901  
 EC-No. : 221-330-3

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Use as laboratory reagent

#### 1.3 Details of the supplier of the safety data sheet

Company : TCI EUROPE N.V.  
 Address : Boereveldseweg 6 - Haven 1063, B-2070 Zwijndrecht, Belgium  
 Telephone : +32 (0)3 735 07 00  
 Telefax : +32 (0)3 735 07 01  
 E-mail address of person responsible for the SDS : sales-eu@tcichemicals.com

#### 1.4 Emergency telephone number

Emergency telephone number : +44 844 892 0111

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements :  
 H226 Flammable liquid and vapour.  
 H315 Causes skin irritation.  
 H341 Suspected of causing genetic defects.  
 H351 Suspected of causing cancer.

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.  
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P264 Wash skin thoroughly after handling.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

##### **Response:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

### 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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Substance name :  $\beta$ -Butyrolactone  
EC-No. : 221-330-3

#### Components

Chemical name	CAS RN EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
beta-Butyrolactone	3068-88-0 221-330-3	>= 90 - <= 100	

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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- If inhaled : Remove person to fresh air and keep comfortable for breathing.  
Get medical advice/ attention.
- In case of skin contact : Take off all contaminated clothing immediately.  
If on skin, rinse well with water.  
Get medical advice/ attention.
- In case of eye contact : Rinse with plenty of water.  
If easy to do, remove contact lens, if worn.  
Get medical advice/ attention.
- If swallowed : Get medical advice/ attention.  
Rinse mouth.

### 4.2 Most important symptoms and effects, both acute and delayed

None known.

### 4.3 Indication of any immediate medical attention and special treatment needed

None known.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Dry powder, Foam, Water spray, Carbon dioxide (CO<sub>2</sub>)

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : No information available.

### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear suitable protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

### 6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Collect as much of the spill as possible with a suitable absorbent material.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Technical measures : Prevent generation of vapour or mist.  
Take precautionary measures against static discharge.  
Use explosion-proof equipment.

Local/Total ventilation : Ensure adequate ventilation.  
Handle product only in closed system or provide appropriate exhaust ventilation at machinery.  
Use a local exhaust ventilation.

Advice on safe handling : Avoid contact with skin, eyes and clothing.  
Wear personal protective equipment.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Do not subject to grinding, shock or friction.  
Wash hands and face thoroughly after handling.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed. Store in a cool and shaded area. Keep in a well-ventilated place. Use explosion-proof equipment. Store locked up.

Storage class (TRGS 510) : 3

### 7.3 Specific end use(s)

Specific use(s) : No information available.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Engineering measures

Install a closed system or local exhaust.  
Also install safety shower and eye bath.

#### Personal protective equipment

Eye/face protection : Safety glasses, Safety goggles, Face-shield  
Hand protection : Impervious gloves  
Skin and body protection : Impervious protective clothing

Respiratory protection : Gas mask  
Self-contained breathing apparatus

\*Use personal protective equipment(PPE) approved under appropriate government standards and follow local and national regulations.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : liquid  
Colour : colourless - yellow  
Odour : No data available  
Odour Threshold : No data available

Melting point/freezing point : -44 °C  
Boiling point/boiling range : 87 °C (50 mmHg)  
Flammability : No data available  
Upper explosion limit/Upper flammability limit : No data available  
Lower explosion limit/Lower flammability limit : No data available  
Flash point : 60 °C  
Auto-ignition point : No data available  
Decomposition temperature : No data available  
pH : No data available  
Viscosity  
Viscosity, dynamic : No data available  
Viscosity, kinematic : No data available  
Solubility(ies)  
Water solubility : 268 g/l (25 °C)  
soluble  
Solubility in other solvents : No data available

Partition coefficient: n-octanol/water (log value) : -0,38  
Vapour pressure : 220 Pa (25 °C)  
Relative density : 1,05  
Relative vapour density : No data available  
Particle characteristics : No data available

### 9.2 Other information

Refractive index : 1,41

Molecular weight : 86,09 g/mol

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : None under normal processing.

### 10.4 Conditions to avoid

Conditions to avoid : Electrical spark, Open flame, Electrostatic discharge

### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents,  
Strong bases,

**10.6 Hazardous decomposition products**Carbon monoxide, Carbon dioxide (CO<sub>2</sub>)**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity****Components:****beta-Butyrolactone:**

- Acute oral toxicity : LD50 (Rat): 18 060 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity
- Acute dermal toxicity : LD50 (Rabbit): > 21 g/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation****Product:**

- Result : Skin irritation

**Components:****beta-Butyrolactone:**

- Result : Skin irritation
- Serious eye damage/eye irritation** : No information available.
- Respiratory or skin sensitisation** : No information available.

**Germ cell mutagenicity****Product:**

- Germ cell mutagenicity- Assessment : Suspected of inducing heritable mutations in the germ cells of humans.

**Components:****beta-Butyrolactone:**

- Germ cell mutagenicity- Assessment : Suspected of inducing heritable mutations in the germ cells of humans.

**Carcinogenicity****Product:**

- Carcinogenicity - Assessment : Suspected human carcinogens

**Components:****beta-Butyrolactone:**

- Carcinogenicity - Assessment : Suspected human carcinogens
- Reproductive toxicity** : No information available.
- STOT - single exposure** : No information available.
- STOT - repeated exposure** : No information available.
- Repeated dose toxicity** : No information available.
- Aspiration hazard** : No information available.
- RTECS No.** : RQ8050000 (beta-Butyrolactone)

## 11.2 Information on other hazards

### Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 12: Ecological information

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

#### Components:

##### beta-Butyrolactone:

Partition coefficient: n-octanol/water (log value) : -0,38

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

#### Product:

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 Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Disposal in accordance with local and national regulations. Take precautions against ignition or explode. Entrust disposal to a licensed waste disposal company.

Contaminated packaging : Disposal in accordance with local and national regulations. Before disposal of used container, remove contents completely.

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## SECTION 14: Transport information

### 14.1 UN number or ID number

ADR : UN 1993

**IMDG** : UN 1993

**IATA** : UN 1993

#### 14.2 UN proper shipping name

**ADR** : FLAMMABLE LIQUID, N.O.S.

**IMDG** : FLAMMABLE LIQUID, N.O.S.

**IATA** : Flammable liquid, n.o.s.

#### 14.3 Transport hazard class(es)

	Class	Subsidiary risks
<b>ADR</b>	: 3	
<b>IMDG</b>	: 3	
<b>IATA</b>	: 3	

#### 14.4 Packing group

**ADR**  
Packing group : III  
Classification Code : F1  
Hazard Identification Number : 30  
Tunnel restriction code : (D/E)

**IMDG**  
Packing group : III  
EmS Code : F-E, S-E

**IATA (Cargo)**  
Packing instruction (cargo aircraft) : 366  
Packing instruction (LQ) : Y344  
Packing group : III

**IATA (Passenger)**  
Packing instruction (passenger aircraft) : 355  
Packing instruction (LQ) : Y344  
Packing group : III

#### 14.5 Environmental hazards

**ADR**  
Environmentally hazardous : no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 40, 3

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

Regulation (EC) on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Water hazard class (Germany) : WGK 3 highly hazardous to water  
Classification according to AwSV, Annex 1 (5.2)

**Other regulations:**

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

**The components of this product are reported in the following inventories:**

CH BAGREG	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory
AICS	: On the inventory, or in compliance with the inventory
DSL	: None of the components of this product are on the Canadian DSL, but all are on the NDSL  beta-Butyrolactone
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory

**15.2 Chemical safety assessment**

A Chemical Safety Assessment is not required for this substance.

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**SECTION 16: Other information**

**Full text of other abbreviations**

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Cooperation 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

This SDS was prepared sincerely based on the information obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling operations, sufficient care should be taken, in addition to the safety measures suitable for the given situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

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