Safety Data Sheet

#18486659 · Full 16-section SDS

According to Regulation (EC) No 1907/2006
According to Regulation (EC) No 2020/878

Molekula Limited
1 Millennium Way
Newton Aycliffe
Durham, DL5 6JW
United Kingdom

info@molekula.com
+44 (0) 3302 000333

PRODUCT	CAS NUMBER	FORMULA	VERSION	REVISION DATE
2,3-Butanediol	**513-85-9**	**CH3CH(OH)CH(OH)CH3**	**10**	**08 Oct 2026**

SECTION 1

Identification

1.1 Product identifier

Product name	2,3-Butanediol
CAS number	513-85-9
EC / EINECS number	208-173-6
Chemical formula	CH3CH(OH)CH(OH)CH3
Molecular weight	90.12
SMILES	CC(O)C(C)O

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

Research and development. Laboratory Chemicals. Manufacture of substances.
Not suitable for human consumption or veterinary purposes.

1.3 Details of the supplier of the safety data sheet

Molekula Limited
1 Millennium Way, Newton Aycliffe
Durham, DL5 6JW, United Kingdom
info@molekula.com · +44 (0) 3302 000333

1.4 Emergency telephone number

0344 892 0111 — National Poisons Information Service (NPIS) (United Kingdom — for healthcare professionals (via TOXBASE))

SECTION 2

Hazard identification

2.1 Classification of the substance or mixture

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008.

2.2 Label elements

NONE

CODE	PRECAUTIONARY STATEMENT
P280	Wear protective gloves/protective clothing/eye protection/face protection
P403	Store in a well-ventilated place

2.3 Other hazards

Does not meet the PBT or vPvB criteria of REACH Annex XIII. This product does not contain any known or suspected Endocrine disruptors.

SECTION 3

Composition / information on ingredients

3.1 Substances

Name	2,3-Butanediol
CAS number	513-85-9
EC number	208-173-6
Concentration / purity	~100.0%
Classification according to Regulation (EC) No 1272/2008	This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008.
Hazard statements	None
Acute toxicity estimate (ATE)	Not reported
Impurities / stabilising additives	*Not applicable*

SECTION 4

First-aid measures

4.1 Description of first aid measures

Inhalation	Assure fresh air breathing and allow the victim to rest.
Skin contact	Remove contaminated clothing immediately (unless stuck to skin) and wash with plenty of water; get medical advice if irritation or rash occurs.
Eye contact	Rinse immediately with plenty of water, remove contact lenses if easy, continue rinsing; obtain medical attention if pain, blinking or redness persists.
Ingestion	Rinse mouth; do NOT induce vomiting; obtain emergency medical attention.

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel. First aiders/ medical personnel need to protect themselves.

4.2 Most important symptoms and effects, both acute and delayed

Not expected to present a significant hazard under normal use; may cause irritation of respiratory tract, skin and eyes, and nausea, vomiting and diarrhea if ingested.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5

Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Foam, dry powder, carbon dioxide, water spray, sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2 Special hazards arising from the substance or mixture

Combustible
Carbon oxides (CO)
Carbon dioxide (CO2)
Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Use water spray to cool exposed containers, approach only from upwind with proper skin and respiratory protection (supplied air), and prevent firefighting water from entering the environment.

SECTION 6

Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate unnecessary personnel, ventilate the area, avoid contact with skin, eyes and clothing, do not breathe vapours; emergency responders use SCBA and chemically protective clothing.

6.2 Environmental precautions

Prevent entry to sewers and public waters; notify authorities if liquid enters sewers or public waters.

6.3 Methods and material for containment and cleaning up

Soak up spills with inert solids such as clay or diatomaceous earth, collect spillage and store away from other materials.

6.4 Reference to other sections

For specific precautions, see Section 8 and Section 13.

SECTION 7

Handling & storage

7.1 Precautions for safe handling

Provide good ventilation to prevent vapour formation; do not eat, drink or smoke when using; wash hands after handling.

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature	Ambient
Conditions for safe storage (incompatibilities)	Keep in original container in a cool, dry, well-ventilated place away from direct sunlight, heat, ignition sources and moisture (hygroscopic); incompatible with acid anhydrides, acid chlorides, oxidising agents, reducing agents and zinc.

7.3 Specific end use(s)

See Section 1.2.

SECTION 8

Exposure controls / personal protection

8.1 Control parameters

Occupational exposure limits (OEL / WEL)	Not reported
DNEC/PNEC data	DNEL/DMEL: Not reported PNEC: Freshwater: 7.6mg/L Freshwater sediment: 28.1mg/kg sediment dw Water intermittent: 1mg/L Microorganisms in sewage treatment: 10mg/L Soil (Agriculture): 1.16mg/kg soil dw Marine water: 0.76mg/L Marine water sediment: 2.81mg/kg sediment dw

8.2 Exposure controls

Eye / face protection	Safety glasses Wear eye/face protection as recommended. All eye/face protection should comply with EN ISO 16321-1:2022.
Skin / hand protection	Nitrile rubber (NBR) gloves, 0.11 mm, >480 min breakthrough (EN 374); long-sleeved protective clothing (EN 14605).
Respiratory protection	Not required Keep self-contained breathing apparatus readily available for emergency use. Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided. Respiratory equipment: Reusable Air-Purifying Respirator (APR). Filter type: ABEK. Standard: EN 14387.
Other protection	Emergency eye wash fountains and safety showers should be available; do not eat, drink or smoke during use.
Environmental exposure controls	Do not let product enter drains.

SECTION 9

Physical & chemical properties

9.1 Information on basic physical and chemical properties

Appearance / physical state	Clear liquid DERIVED FROM: LITERATURE
Colour	Clear colourless to pale yellow DERIVED FROM: LITERATURE
Odour	Not known DERIVED FROM: LITERATURE
Melting / freezing point	25℃ DERIVED FROM: LITERATURE
Boiling point	180 - 184 °C DERIVED FROM: LITERATURE
Flammability	Non flammable DERIVED FROM: LITERATURE
Lower and upper explosion limit	LEL 3.1 vol %; UEL 11.4 vol % DERIVED FROM: LITERATURE
Flash point	85 °C DERIVED FROM: LITERATURE
Auto-ignition temperature	402 °C DERIVED FROM: LITERATURE
Decomposition temperature	*No data available*
pH	9 - 10 at 500 g/l at 20 °C DERIVED FROM: LITERATURE
Acidity	Base DERIVED FROM: LITERATURE
Kinematic viscosity	*No data available*
Solubility	*No data available*
Partition coefficient n-octanol/water (log value)	0.92 DERIVED FROM: LITERATURE
Vapour pressure	23 hPa at 20 °C DERIVED FROM: LITERATURE
Density (g/mL)	1.002 g/mL DERIVED FROM: LITERATURE
Relative vapour density	3.61 at 20 °C DERIVED FROM: LITERATURE
Particle characteristics	*No data available*

9.2 Other information

No data available

SECTION 10

Stability & reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Strong oxidising agents

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources; no smoking; material is hygroscopic, protect from moisture.

10.5 Incompatible materials

Acid chlorides, acid anhydrides, reducing agents, zinc, oxidising agents.

10.6 Hazardous decomposition products

See section 5

SECTION 11

Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (LD50 / LC50)	LD50 oral, rat > 5000 mg/kg LD50 Intraperitoneal, mouse >6075mg/kg
Skin corrosion / irritation	No skin irritation (Rabbit) 24 hours
Eye corrosion / irritation	No eye irritation (Rabbit) 72 hours
Respiratory / skin sensitisation	Does not cause skin sensitisation (Guinea pig- Maximisation test)
Carcinogenicity	Not classified
Mutagenicity	Negative-with & without metabolic activation- S.typhimurium- reverse mutation assay.
Reproductive toxicity	Not classified
STOT (single / repeated exposure)	Not classified (single and repeated exposure)
Aspiration hazard	Not classified

11.2 Information on other hazards

Not considered an endocrine disruptor.

SECTION 12

Ecological information

12.1 Toxicity

Crustacea:
EC50 Daphnia magna 1100 mg/l 48 hours

Bacteria
EC50- Sludge treatment >1000mg/l- 0.5h

12.2 Persistence and degradability

Readily biodegradable.>90% 14 days.

12.3 Bioaccumulative potential

Not potentially bioaccumulable (Log Pow 0.92).

12.4 Mobility in soil

No additional information available

12.5 Results of PBT and vPvB assessment

Does not meet the PBT or vPvB criteria of REACH Annex XIII.

12.6 Endocrine disrupting properties

See Section 11.2.

12.7 Other adverse effects

No data available

SECTION 13

Disposal considerations

13.1 Waste treatment methods

Dispose in a safe manner in accordance with local/national regulations; avoid release to the environment.

SECTION 14

Transport information

14.1 UN number or ID number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Special precautions for user	*Not applicable*
Transport category	*Not applicable*
Tunnel code	*Not applicable*
Packing instruction (ADR)	*Not applicable*
Packing instruction (IMDG)	*Not applicable*

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15

Regulatory information

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

Substance-specific regulations (e.g. licences)	No REACH Annex XVII restrictions; not on REACH Candidate List or Annex XIV; Germany WGK 1 (slightly hazardous to water); Denmark fire hazard class III-1.
REACH code	Y113
ECHA notification	*Not applicable*

15.2 Chemical safety assessment

No

SECTION 16

Other information

Revision notes / other information	Version 10 was created on 08.10.2026 and replaces v1 (27.02.2019) with no significant changes.

This Safety Data Sheet was generated automatically from the data Molekula holds against this product, in the 16-section GHS/CLP format. Fields shown as “No data available” carry no recorded value; fields shown as “Not applicable” were assessed as not relevant to this substance. For queries, contact Molekula at info@molekula.com.