

Revision Date 27-Feb-2012

Revision Number 4

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

Product Identifier

Product Description: 1,4-Butanediol
Reach Registration Number 01-2119471849-20
Cat No. 107630000; 107630010; 107630020; 107630025
Synonyms 1,4-Butylene glycol

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company

Acros Organics BVBA
 Janssen Pharmaceuticaaan 3a
 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
 For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
 Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
 CHEMTREC Phone Number, Europe: 001-703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute oral toxicity	Category 4
Specific target organ systemic toxicity (single exposure)	Category 3

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

Symbol(s) Xn - Harmful
R-phrases(s) R22 - Harmful if swallowed
 R67 - Vapors may cause drowsiness and dizziness

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SECTION 2. HAZARDS IDENTIFICATION

Label Elements



Signal Word

Warning

Hazard Statements

H302 - Harmful if swallowed

H336 - May cause drowsiness or dizziness

Precautionary Statements - EU (§28, 1272/2008)

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

Other Hazards

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
1,4-Butanediol 110-63-4	EEC No. 203-786-5	99	110-63-4	Xn; R22 R67	Acute Tox. 4 (H302) STOT SE 3 (H336)	01-2119471849-20

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Ingestion

Clean mouth with water. Get medical attention.

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Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Notes to Physician Treat symptomatically

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Carbon dioxide (CO₂). Dry chemical. Use water spray to cool unopened containers.

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Prevent product from entering drains. Keep in suitable, closed containers for disposal. Provide adequate ventilation. Do not flush into surface water or sanitary sewer system.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Conditions for safe storage, including any incompatibilities

Keep in a dry place. Keep container tightly closed. Keep away from direct sunlight. Store at room temperature.

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Specific End Uses

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

Component

1,4-Butanediol

Italy	Germany	Portugal	The Netherlands	Finland
	TWA: 50 ppm 8 Stunden. exposure factor 4 TWA: 200 mg/m ³ 8 Stunden. exposure factor 4			

Component

1,4-Butanediol

Austria	Denmark	Switzerland	Poland	Norway
STEL: 200 ppm 15 Minuten STEL: 800 mg/m ³ 15 Minuten TWA: 50 ppm 8 Stunden TWA: 200 mg/m ³ 8 Stunden				

Component

1,4-Butanediol

Russia - TWA	Slovak Republic	Slovenia	Sweden	Turkey
MAC: 5 mg/m ³		TWA: 50 ppm 8 urah TWA: 200 mg/m ³ 8 urah STEL: 200 ppm 15 minutah STEL: 800 mg/m ³ 15 minutah		

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL)

No information available.

Predicted No Effect Concentration (PNEC)

No information available.

Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Protective gloves

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

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Hygiene Measures Handle in accordance with good industrial hygiene and safety practice
Environmental exposure controls No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	viscous liquid
Appearance	Colorless
odor	odorless
pH	7-8 500 g/l aq. sol.
Vapor Pressure	<0.1 hPa @ 20 °C
Vapor Density	3.1
Viscosity	70 cP at 24 °C
Boiling Point/Range	229.2°C / 444.6°F @ 1013 hPa
Melting Point/Range	20°C / 68°F
Decomposition temperature	> 150°C
Flash Point	135°C / 275°F
Autoignition Temperature	420°C / 788°F
Explosion Limits	
Lower	2.4 Vol%
Upper	15.3 Vol%
Water Solubility	miscible
Specific Gravity	1.010
Molecular Formula	C4 H10 O2
Molecular Weight	90.12

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions. Hygroscopic.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions . No information available.

Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition, Incompatible products, Exposure to moist air or water.

Incompatible Materials

Acids, Peroxides, Acid anhydrides, Acid chlorides, Reducing agents.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂).

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,4-Butanediol	1525 mg/kg (Rat)	2000 mg/kg (Rat)	5.1 mg/L (Rat) 4 h

Chronic Toxicity

Carcinogenicity

There are no known carcinogenic chemicals in this product

Sensitization

No information available.

Mutagenic Effects

Not mutagenic in AMES Test

Reproductive Effects

No information available.

Developmental Effects

No information available.

Target Organs

No information available.

Other Adverse Effects

The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Endocrine Disruptor Information

None known

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,4-Butanediol	500 mg/L EC50 > 72 h 500 mg/L EC50 > 92 h	10000 mg/L LC50 96 h 1240 mg/L LC50 96 h		813 mg/L EC50 = 48 h

Persistence and degradability

Readily biodegradable

Bioaccumulative potential

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No information available.

Component	log Pow
1,4-Butanediol	-0.88

Mobility in soil

Results of PBT and vPvB assessment

Other adverse effects

No information available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues / Unused Products Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

SECTION 14. TRANSPORT INFORMATION

IMDG/IMO Not regulated

ADR Not regulated

IATA Not regulated

SECTION 15. REGULATORY INFORMATION

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

International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
1,4-Butanediol	203-786-5	-		X	X	-	X	X	X	X	X

Legend

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TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
CHINA - China Inventory of Existing Chemical Substances
AICS - Inventory of Chemical Substances
KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment**SECTION 16. OTHER INFORMATION****Full text of R-phrases referred to under sections 2 and 3**

R22 - Harmful if swallowed

R67 - Vapors may cause drowsiness and dizziness

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Revision Summary

(M)SDS sections updated, 2, 3, 16.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**Disclaimer**

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet