

Revision Date 10-Nov-2010

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Description: (S)-(+)-sec-Butanol
Cat No. 218030000; 218030050; 218030010
Synonyms (S)-(+)-2-Butanol; sec-Butyl alcohol

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

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

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

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Serious Eye Damage/Eye Irritation	Category 2A
Specific target organ systemic toxicity (single exposure)	Category 3
Flammable liquids.	Category 3

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

For the full text of the R phrases mentioned in this Section, see Section 16

Symbol(s) Xi - Irritant
R -phrase(s) R10 - Flammable
 R67 - Vapors may cause drowsiness and dizziness
Risk Combination Phrases R36/37 - Irritating to eyes and respiratory system

2. HAZARDS IDENTIFICATION

Label Elements



Signal Word

Warning

Hazard Statements

H336 - May cause drowsiness or dizziness

H319 - Causes serious eye irritation

H226 - Flammable liquid and vapor

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

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No.	Weight %	CAS-No	Classification	GHSCLAS	REACH Reg. No.
(S)-Butan-2-ol 4221-99-2	EEC No. 224- 168-1	99	4221-99-2	R10 Xi;R36/37 R67;	Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT SE 3 (H336) Flam. Liq. 3 (H226) ; Flam. Liq. 3 (H226)	-

For the full text of the R phrases mentioned in this Section, see Section 16

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 removing all contaminated clothes and shoes Obtain medical attention

Ingestion

Do not induce vomiting Never give anything by mouth to an unconscious person Drink plenty of water Get medical attention If possible drink milk afterwards

Inhalation

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

Notes to Physician

Treat symptomatically

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Carbon dioxide (CO₂) Foam Water Dry chemical Use water spray to cool unopened containers water fog

Extinguishing media which must not be used for safety reasons

Water may be ineffective

Special hazards arising from the substance or mixture

Flammable Vapors may travel to source of ignition and flash back

Advice for fire-fighters

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

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). Keep in suitable and closed containers for disposal. Remove all sources of ignition.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe dust Do not breathe vapors or spray mist Do not get in eyes, on skin, or on clothing Use only in area provided with appropriate exhaust ventilation Use explosion-proof equipment Use only non-sparking tools

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place Keep container tightly closed Keep away from heat and sources of ignition Flammables area

Specific End Uses

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits

Component
(S)-Butan-2-ol

Italy	Portugal	The Netherlands	Finland	Denmark
			TWA: 50 ppm TWA: 150 mg/m ³ STEL: 75 ppm STEL: 230 mg/m ³	

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

Exposure controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location

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

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls

No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State

Liquid

Appearance

Colorless

odor

sweet

pH

No information available.

Vapor Pressure

17 hPa @ 20 °C

Vapor Density

2.6 (Air = 1.0)

Viscosity

4.21 mPa s at 20 °C

Boiling Point/Range

99 - 100°C / 210.2 - 212°F@ 760 mmHg

Melting Point/Range

-114°C / -173.2°F

Flash Point

26°C / 78.8°F

Explosion Limits

Lower

1.7

Upper

9.8

Water Solubility

IN WATER: 125 G/L (20°C)

Specific Gravity

0.800

Molecular Formula

C4 H10 O

Molecular Weight

74.12

10. STABILITY AND REACTIVITYReactivityChemical Stability

Stable under normal conditions.

Possibility of Hazardous ReactionsHazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions .

No information available.

Conditions to Avoid

Incompatible products.

Incompatible Materials

Acids, Halogens, Acid anhydrides, Acid chlorides.

Hazardous Decomposition Products

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

11. TOXICOLOGICAL INFORMATIONInformation on Toxicological EffectsAcute ToxicityProduct Information

No acute toxicity information is available for this product

Component InformationChronic ToxicityCarcinogenicity

There are no known carcinogenic chemicals in this product

Sensitization

No information available.

Mutagenic Effects

No information available

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.

Endocrine Disruptor Information

None known

12. ECOLOGICAL INFORMATIONToxicityEcotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

12. ECOLOGICAL INFORMATION

Persistence and degradability

No information available

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Results of PBT and vPvB assessment
Other adverse effects

No information available

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 for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

IMDG/IMO

UN-No	1120
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTANOLS

ADR

UN-No	1120
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTANOLS

IATA

UN-No	1120
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTANOLS

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
(S)-Butan-2-ol	224-168-1	-		-	-	-	X	X	X	-	KE-03872 X

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory Lists

DSL/NDSL - 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**16. OTHER INFORMATION****Text of R phrases mentioned in Section 2-3**

R10 - Flammable

R67 - Vapors may cause drowsiness and dizziness

R36/37 - Irritating to eyes and respiratory system

Revision Date 10-Nov-2010

Revision Summary Not applicable

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

Disclaimer

The information provided on this SDS 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