

# Safety Data Sheet

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

### 1.1 Product identifier

Trade name/designation:	1-Butanol HiPerSolv CHROMANORM® for HPLC HiPerSolv CHROMANORM®
Product No.:	83633
CAS No.:	71-36-3
Other means of identification:	1-Butyl alcohol, 1-Hydroxy butane, n-Butanol, Propyl carbinol

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

Relevant identified uses:	General chemical reagent
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### 1.3 Details of the supplier of the safety data sheet

*Singapore*

#### **VWR Singapore Pte Ltd.**

Street	18 Gul Drive
Postal code/City	Singapore 629468
Telephone	+65 6505 0760
Telefax	+65 6264 3780
E-mail (competent person)	SDS@avantorsciences.com

### 1.4 Emergency phone number

Telephone	+65 (0) 6505 0760 (office hours: 8 am-5 pm)
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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Hazard classes and hazard categories	Hazard statements
Flammable liquid, category 3	H226
Acute toxicity, category 4, oral	H302
Skin irritation, category 2	H315
Serious eye damage, category 1	H318
Specific target organ toxicity (single exposure), category 3, Respiratory tract irritation	H335
Specific target organ toxicity (single exposure), category 3, narcotic effect	H336

### 2.2 Label elements

#### Hazard pictograms



**Signal word:** Danger

Hazard statements	
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P243	Take precautionary measures against static discharge.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P270	Do not eat, drink or smoke when using this product.
P242	Use only non-sparking tools.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P362+P364	Take off contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/...
P312	Call a POISON CENTER/doctor/.../if you feel unwell.
P321	Specific treatment (see ... on this label).
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use... to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to ...

## 2.3 Other hazards

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

## SECTION 3: Composition / information on ingredients

### 3.1 Substances

Substance name	Butan-1-ol
Molecular formula	$\text{H}_3\text{C}(\text{CH}_2)_2\text{CH}_2\text{OH}$
Molecular weight	74.12 g/mol
CAS No.	71-36-3

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

IF exposed: Immediately call a POISON CENTRE/doctor. If unconscious but breathing normally, place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

#### After inhalation

Immediately call a POISON CENTRE/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

#### In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

#### After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

#### In case of ingestion

Immediately call a POISON CENTRE/doctor. Do NOT induce vomiting. Rinse mouth thoroughly with water. Give nothing to eat or drink.

#### Self-protection of the first aider

First aider: Pay attention to self-protection!

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

no data available

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

no data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water spray  
ABC-powder  
Carbon dioxide (CO<sub>2</sub>)  
Nitrogen

#### Extinguishing media which must not be used for safety reasons

Strong water jet

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

In case of fire may be liberated:  
Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives.

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

#### Additional information

Do not allow run-off from fire-fighting to enter drains or water courses.

Do not inhale explosion and combustion gases.

Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen.

In case of fire: Evacuate area.

## SECTION 6: Accidental release measures

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

In case of major fire and large quantities: Remove persons to safety.

### 6.2 Environmental precautions

Discharge into the environment must be avoided.

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

Spilled product must never be returned to the original container for recycling. Collect in closed and suitable containers for disposal.

### 6.4 Additional information

Clear spills immediately.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid:

Inhalation

Avoid contact with eyes and skin.

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

Keep away from sources of ignition - No smoking.

Usual measures for fire prevention.

Take precautionary measures against static discharges.

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

Recommended storage temperature: 15-25°C

Storage class: 3

Keep container tightly closed and in a well-ventilated place. Keep/Store away from combustible materials.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Does not contain substances above concentration limits fixing an occupational exposure limit.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

no data available

#### 8.2.2 Personal protection equipment

no data available

##### *Eye/face protection*

no data available

Recommendation: no data available

##### *Skin protection*

Wear suitable gloves. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

##### By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time::	70 min
Recommended glove articles:	VWR 112-0998

##### By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time::	> 480 min
Recommended glove articles:	VWR 112-3717 / 112-1381

##### *Respiratory protection*

no data available

Suitable respiratory protection apparatus:	no data available
Recommendation:	no data available
Suitable material:	no data available
Recommendation:	no data available

##### *Additional information*

no data available

#### 8.2.3 Environmental exposure controls

no data available

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

(a) Appearance	
Physical state:	liquid
Colour:	colourless
(b) Odour:	characteristic
(c) Odour threshold:	10 ppm

#### Safety relevant basic data

(d) pH:	7 (70 g/l; H <sub>2</sub> O; 20 °C)
(e) Melting point/freezing point:	-89 °C
(f) Initial boiling point and boiling range:	119 °C (1013 hPa)
(g) Flash point:	35 °C (closed cup)
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	Flammable liquid and vapour.
(j) Flammability or explosive limits	
Lower explosion limit:	1.4 % (v/v)
Upper explosion limit:	11.3 % (v/v)
(k) Vapour pressure:	6.7 hPa (20 °C)
(l) Vapour density:	2.55 (20 °C)
(m) Density:	0.812 g/cm <sup>3</sup> (20 °C)
(n) Solubility(ies)	
Water solubility:	66 g/l (20 °C)
(o) Partition coefficient: n-octanol/water:	1 (25 °C)
(p) Auto-ignition temperature:	355 °C (DIN 51794)
(q) Decomposition temperature:	not applicable
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	2.95 mPa*s (20 °C)
(s) Explosive properties:	not applicable
(t) Oxidising properties:	not applicable
(u) Particle characteristics:	does not apply to liquids

### 9.2 Other information

Bulk density:	no data available
Refraction index:	1.3993 (589 nm; 20 °C)
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapours can form explosive mixtures with air.

## 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

## 10.3 Possibility of hazardous reactions

Reaction with:  
Oxidising agent, strong

## 10.4 Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

## 10.5 Incompatible materials

Materials to avoid  
Oxidising agent, strong  
Acids  
halogenated hydrocarbons  
Aluminium  
Reducing agent

## 10.6 Hazardous decomposition products

In case of fire may be liberated:  
Carbon monoxide  
Carbon dioxide

## 10.7 Additional information

no data available

# SECTION 11: Toxicological information

## 11.1 Information on toxicological effects

### Acute effects

*Acute oral toxicity:*

LD50: > 790 mg/kg - Rat - (RTECS)

*Acute dermal toxicity:*

LD50: > 3400 mg/kg - Rabbit - (RTECS)

*Acute inhalation toxicity:*

LC50: > 8000 ppm - Rat - (Japan GHS Basis for Classification Data)

### Irritant and corrosive effects

*Primary irritation to the skin:*

Causes skin irritation.

*Irritation to eyes:*

Causes serious eye damage.

*Irritation to respiratory tract:*

May cause respiratory irritation.



**Respiratory or skin sensitisation**

In case of skin contact: not sensitising

After inhalation: not sensitising

**STOT-single exposure**

May cause drowsiness or dizziness.

**STOT-repeated exposure**

not applicable

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)****Carcinogenicity**

No indication of human carcinogenicity.

**Germ cell mutagenicity**

No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**

No indications of human reproductive toxicity exist.

**Aspiration hazard**

not applicable

**Other adverse effects**

no data available

**Additional information**

no data available

## SECTION 12: Ecological information

### 12.1 Ecotoxicity

**Fish toxicity:**

LC50: 1376 mg/l (96 h) Pimephales promelas - OECD 203

**Daphnia toxicity:**

NOEC: 1.1 mg/l (21 d) Daphnia magna - OECD 211

EC50: 1328 mg/l (48 h) Daphnia magna - OECD 202

**Algae toxicity:**

EC50: 225 mg/l (96 h) Pseudokirchneriella subcapitata - OECD 201

**Bacteria toxicity:**

EC10: 2476 mg/l (17 h) Pseudomonas putida - DIN 38412

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: 1 (25 °C)

#### 12.4 Mobility in soil:

no data available

#### 12.5 Results of PBT/vPvB assessment

not applicable

#### 12.6 Other adverse effects

no data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### Appropriate disposal / Product

Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal. Send to a hazardous waste incinerator facility under observation of official regulations.

Waste code product: 070104

##### Appropriate disposal / Package

Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

##### Additional information

no data available

### SECTION 14: Transport information

#### Land transport (ADR/RID)

14.1	UN-No.:	1120
14.2	Proper Shipping Name:	BUTANOLS
14.3	Class(es):	3
	Classification code:	F1
	Hazard label(s):	3
14.4	Packing group:	III
14.5	Environmental hazards:	No
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	30
	tunnel restriction code:	D/E
		(Passage forbidden through tunnels of category D when carried in bulk or in tanks. Passage forbidden through tunnels of category E.)

#### Sea transport (IMDG)

14.1	UN-No.:	1120
14.2	Proper Shipping Name:	BUTANOLS
14.3	Class(es):	3
	Classification code:	
	Hazard label(s):	3

14.4	Packing group:	III
14.5	Environmental hazards:	No
	Marine pollutant:	No
14.6	Special precautions for user:	
	Segregation group:	-
	EmS-No.	F-E S-D
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code not relevant	

#### Air transport (ICAO-TI / IATA-DGR)

14.1	UN-No.:	1120
14.2	Proper Shipping Name:	BUTANOLS
14.3	Class(es):	3
	Classification code:	
	Hazard label(s):	3
14.4	Packing group:	III
14.5	Special precautions for user:	

## SECTION 15: Regulatory information

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

#### National regulations

- Workplace Safety and Health Act
- Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
- Environmental Protection and Management Act (EPMA) - Second Schedule, Part 1, Control of Hazardous Substances
- Maritime and Port Authority of Singapore (MPA) - Dangerous Goods, Petroleum and Explosives Regulations

## SECTION 16: Other information

#### Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists  
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road  
 AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)  
 CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures  
 DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)  
 DNEL - Derived No Effect Level  
 Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)  
 IATA-DGR - International Air Transport Association-Dangerous Goods Regulations  
 ICAO-TI - International Civil Aviation Organization-Technical Instructions  
 IMDG - International Maritime Code for Dangerous Goods  
 KOSHA - Korea Occupational Safety and Health Agency  
 LTV - Long Term Value  
 NIOSH - National Institute for Occupational Safety and Health  
 OSHA - Occupational Safety & Health Administration  
 PBT - Persistent, Bioaccumulative and Toxic  
 PNEC - Predicted No Effect Concentration  
 RID - Regulation concerning the International Carriage of Dangerous Goods by Rail  
 STV - Short Term Value  
 SVHC - Substances of Very High Concern  
 vPvB - very Persistent, very Bioaccumulative

#### Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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**Additional information**

Indication of changes

Section 8: Update of DNEL and/or PNEC data

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

*The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.*