

Creation Date 03-Oct-2013

Revision Date 03-Oct-2013

Revision Number 1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

Product Description: **3-Butenylamine**
Cat No. : **455050000; 455050010; 455050050**
Synonyms **1-Amino-3-butene; Homoallylamine**
CAS-No **2524-49-4**
Molecular Formula **C4 H9 N**

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

Recommended Use **Laboratory chemicals**
Uses advised against **No Information available**

1.3. Details of the supplier of the safety data sheet

Company **Acros Organics BVBA**
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
E-mail address **begel.sdsdesk@thermofisher.com**

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION**2.1. Classification of the substance or mixture****CLP Classification - Regulation (EC) No 1272/2008****Physical hazards**

Flammable liquids **Category 2**

Health hazards

Skin Corrosion/irritation **Category 1 B**
Serious Eye Damage/Eye Irritation **Category 1**

Environmental hazards

Based on available data, the classification criteria are not met

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

Symbol(s) **C - Corrosive**
F - Highly flammable
R-phrase(s) **R11 - Highly flammable**
R34 - Causes burns

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

2.2. Label elements



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapor

H314 - Causes severe skin burns and eye damage

Precautionary Statements

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

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

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

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower

2.3. Other hazards

No information available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances**

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008	DSD Classification - 67/548/EEC
3-Butenylamine	2524-49-4		>95	Flam. Liq. 2 (H225) Skin Corr. 1B (H314) Eye Dam. 1 (H318)	F; R11 C; R34

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

SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures****General Advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact

Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Inhalation

If breathing is difficult, give oxygen. Remove from exposure, lie down. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Call a physician immediately.

3-Butenylamine

Protection of First-aiders

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination

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

Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

4.3. Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media****Suitable Extinguishing Media**

CO₂, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NOx).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

3-Butenylamine

Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Store under an inert atmosphere. Flammables area.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Exposure limits**

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

Biological limit values

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

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL)

No information available.

<u>Route of exposure</u>	<u>Acute effects (local)</u>	<u>Acute effects (systemic)</u>	<u>Chronic effects (local)</u>	<u>Chronic effects (systemic)</u>
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls**Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment**Eye Protection**

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

3-Butenylamine

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments (minimum requirement)
Natural rubber	See manufacturers recommendations	-	EN 374	
Nitrile rubber				
Neoprene				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Remove gloves with care avoiding skin contamination.

Skin and body protection	Long sleeved clothing
Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.. Recommended Filter type: Particulates filter conforming to EN 143, Ammonia and organic ammonia derivatives filter, Type K, Green, conforming to EN14387.
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless
Physical State	Liquid.
Odor	amine-like
Odor Threshold	No data available
pH	No information available.
Melting Point/Range	No data available
Softening Point	No data available
Boiling Point/Range	83°C / 181.4°F
Flash Point	-5°C / 23°F
	Method - No information available.
Evaporation Rate	No data available
Flammability (solid,gas)	Not applicable
Explosion Limits	Liquid
Vapor Pressure	78.5 mmHg @25°C
Vapor Density	No data available
Specific Gravity / Density	0.761
Bulk Density	Not applicable
Water Solubility	soluble
Solubility in other solvents	No information available.

3-Butenylamine

Partition Coefficient (n-octanol/water)

Autoignition Temperature	No data available	
Decomposition temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available.	Vapors may form explosive mixtures with air
Oxidizing Properties	No information available.	

9.2. Other information

Molecular Formula	C4 H9 N
Molecular Weight	71.12

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

None known, based on information available.

10.2. Chemical stability

No information available.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition, Exposure to air.

10.5. Incompatible materials

Oxidizing agents. Carbon dioxide (CO2).

10.6. Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x).

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Product Information****(a) acute toxicity;**

Oral	No data available
Dermal	No data available
Inhalation	No data available

(b) skin corrosion/irritation;

Category 1 B

(c) serious eye damage/irritation;

Category 1

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity;

No data available

3-Butenylamine

(f) carcinogenicity;	No data available There are no known carcinogenic chemicals in this product
(g) reproductive toxicity;	No data available
(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	No data available
Target Organs	No information available.
(j) aspiration hazard;	No data available
Other Adverse Effects Symptoms / effects, both acute and delayed	The toxicological properties have not been fully investigated. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects	Do not empty into drains.
12.2. Persistence and degradability Persistence	Persistence is unlikely, based on information available.
12.3. Bioaccumulative potential	Bioaccumulation is unlikely
12.4. Mobility in soil	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.
12.5. Results of PBT and vPvB assessment	No data available for assessment
12.6. Other adverse effects Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential	This product does not contain any known or suspected endocrine disruptors This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods	
Waste from Residues / Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC)	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

SECTION 14: TRANSPORT INFORMATION**IMDG/IMO**

3-Butenylamine

14.1. UN number	UN2733
14.2. UN proper shipping name	AMINES, FLAMMABLE, CORROSIVE, N.O.S.
14.3. Transport hazard class(es)	3
Subsidiary Hazard Class	8
14.4. Packing group	II

ADR

14.1. UN number	UN2733
14.2. UN proper shipping name	AMINES, FLAMMABLE, CORROSIVE, N.O.S.
14.3. Transport hazard class(es)	3
Subsidiary Hazard Class	8
14.4. Packing group	II

IATA

<u>14.1. UN number</u>	UN2733
<u>14.2. UN proper shipping name</u>	AMINES, FLAMMABLE, CORROSIVE, N.O.S.*
<u>14.3. Transport hazard class(es)</u>	3
Subsidiary Hazard Class	8
<u>14.4. Packing group</u>	II
<u>14.5. Environmental hazards</u>	No hazards identified
<u>14.6. Special precautions for user</u>	No special precautions required
<u>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</u>	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

National Regulations

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3

R34 - Causes burns
R11 - Highly flammable

Full text of H-Statements referred to under sections 2 and 3

H225 - Highly flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Legend

SAFETY DATA SHEET

Revision Date 03-Oct-2013

3-Butenylamine

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Industrial Hygiene

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

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

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japan Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet,

Chemadvisor - LOLI,

Merck index,

RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 03-Oct-2013

Revision Date 03-Oct-2013

Revision Summary

Reason for revision Not applicable

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