ALFAAA13014

# (+/-)-2-Aminobutane

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

**产品说明:** (+/-)-2-氨基丁烷
**Product Description:** **(+/-)-2-Aminobutane**

**Cat No. :** **A13014**
**Synonyms** 2-Aminobutane
**CAS No** 13952-84-6
**Molecular Formula** C4 H11 N

**Supplier**

Avocado Research Chemicals Ltd.
(Part of Thermo Fisher Scientific)
Shore Road, Heysham
Lancashire, LA3 2XY,
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

**Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **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

**E-mail address** begel.sdsdesk@thermofisher.com

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

## SECTION 2. HAZARD IDENTIFICATION

| **Physical State** | **Appearance** | **Odor** |
|---|---|---|
| Liquid | Clear | Ammonia-like |

**Emergency Overview**

Highly flammable liquid and vapor. Causes severe skin burns and eye damage. Very toxic to aquatic life. Toxic if swallowed. May be harmful in contact with skin. Harmful if inhaled. Air sensitive.

**Classification of the substance or mixture**

| | |
|---|---|
| Flammable liquids. | Category 2 |
| Acute Oral Toxicity | Category 3 |
| Acute Dermal Toxicity | Category 5 |
| Acute Inhalation Toxicity - Vapors | Category 4 |
| Skin Corrosion/Irritation | Category 1 A |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Acute aquatic toxicity | Category 1 |

**Label Elements**

**Signal Word** **Danger**

**Hazard Statements**
H225 - Highly flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H400 - Very toxic to aquatic life
H301 - Toxic if swallowed
H313 - May be harmful in contact with skin
H332 - Harmful if inhaled

**Precautionary Statements**
**Prevention**
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P240 - Ground and bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting equipment
P242 - Use non-sparking tools
P243 - Take action to prevent static discharges
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
**Response**
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
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 or doctor
P330 - Rinse mouth
P331 - Do NOT induce vomiting
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P362 + P364 - Take off contaminated clothing and wash it before reuse
**Storage**
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
**Disposal**
P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**
Vapors may cause flash fire or explosion. Highly flammable.
**Health Hazards**
Corrosive. Causes skin and eye burns. Causes serious eye damage. Toxic if swallowed. May be harmful in contact with skin. Harmful if inhaled.
**Environmental hazards**
Very toxic to aquatic life. Will likely be mobile in the environment due to its volatility. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.

This product does not contain any known or suspected endocrine disruptors.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No | Weight % |
|---|---|---|
| sec-Butylamine | 13952-84-6 | >95 |

## SECTION 4. FIRST AID MEASURES

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

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**
If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove to fresh air. Immediate medical attention is required.

**Ingestion**
Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**
Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: 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

**Self-Protection of the First Aider**
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**
Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Water spray. Carbon dioxide ($CO_2$). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers. $CO_2$, dry chemical, dry sand, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**
No information available.

**Specific Hazards Arising from the Chemical**
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. Do not allow run-off from fire-fighting to enter drains or water courses.

**Protective Equipment and Precautions 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

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

**Environmental Precautions**
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

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

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7. HANDLING AND STORAGE

**Handling**
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. 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.

**Storage**
Keep away from heat, sparks and flame. Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Corrosives area.

**Specific Use(s)**
Use in laboratories

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

**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

**Exposure Controls**

**Engineering Measures**
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use spark-proof tools and explosion-proof equipment. 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

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

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 compatability, 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.<br>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<br>**Recommended Filter type:** Organic gases and vapours filter Type A Brown 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.<br>**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141<br>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** | Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| **Appearance** | Clear | |
| **Physical State** | Liquid | |
| **Odor** | Ammonia-like | |
| **Odor Threshold** | No data available | |
| **pH** | 13 | 100 g/L aq.sol |
| **Melting Point/Range** | -104 °C / -155.2 °F | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | 63 °C / 145.4 °F | @ 760 mmHg |
| **Flash Point** | -19 °C / -2.2 °F | **Method -** No information available |
| **Evaporation Rate** | No data available | |
| **Flammability (solid,gas)** | Not applicable | Liquid |
| **Explosion Limits** | **Lower** 1.8<br>**Upper** 9 | |
| **Vapor Pressure** | 180 hPa @ 20 °C | |
| **Vapor Density** | 2.52 | (Air = 1.0) |
| **Specific Gravity / Density** | 0.720 | |
| **Bulk Density** | Not applicable | Liquid |
| **Water Solubility** | Miscible | |
| **Solubility in other solvents** | No information available | |
| **Partition Coefficient (n-octanol/water)** | | |
| **Component** | **log Pow** | |
| sec-Butylamine | 0.74 | |
| **Autoignition Temperature** | 355 °C / 671 °F | |
| **Decomposition Temperature** | No data available | |
| **Viscosity** | 0.5 mPa.s at 20 °C | |
| **Explosive Properties** | | Vapors may form explosive mixtures with air |
| **Oxidizing Properties** | No information available | |
| **Molecular Formula** | C4 H11 N | |

**Molecular Weight** 73.13

## SECTION 10. STABILITY AND REACTIVITY

**Stability** Air sensitive.

**Hazardous Reactions** None under normal processing.
**Hazardous Polymerization** Hazardous polymerization does not occur.

**Conditions to Avoid** Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Incompatible products.

**Materials to avoid** Acids. Strong oxidizing agents. sodium hypochlorite. Acid anhydrides. Acid chlorides. Metals. Carbon dioxide (CO2).

**Hazardous Decomposition Products** Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide ($CO_2$).

## SECTION 11. TOXICOLOGICAL INFORMATION

**Product Information**

**(a) acute toxicity;**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| sec-Butylamine | LD50 = 152 mg/kg ( Rat ) | LD50 = 2500 mg/kg ( Rabbit ) | |

**(b) skin corrosion/irritation;** Category 1 A

**(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

Not mutagenic in AMES Test

**(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

**Symptoms / effects,both acute and** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness,

**delayed** tiredness, nausea and vomiting: 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

**Ecotoxicity effects** The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|---|---|---|---|---|
| sec-Butylamine | LC50: 46-68 mg/L/96h (Leuciscus idus) | EC50: 37.9 mg/L/48h | EC50: 0.54 mg/L/72h | |

**Persistence and Degradability** Readily biodegradable
**Persistence** Persistence is unlikely, based on information available.
**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential** Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|---|---|---|
| sec-Butylamine | 0.74 | No data available |

**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

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors
**Persistent Organic Pollutant** This product does not contain any known or suspected substance
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13. DISPOSAL CONSIDERATIONS

**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.

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with high pH-value must be neutralized before discharge. Do not let this chemical enter the environment.

## SECTION 14. TRANSPORT INFORMATION

**Road and Rail Transport**

**UN-No** UN2734
**Proper Shipping Name** AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
**Technical Shipping Name** sec-Butylamine
**Hazard Class** 8
**Subsidiary Hazard Class** 3
**Packing Group** I

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN2734 |
| **Proper Shipping Name** | AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| **Technical Shipping Name** | sec-Butylamine |
| **Hazard Class** | 8 |
| **Subsidiary Hazard Class** | 3 |
| **Packing Group** | I |

**IATA**

| | |
|---|---|
| **UN-No** | UN2734 |
| **Proper Shipping Name** | AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| **Technical Shipping Name** | sec-Butylamine |
| **Hazard Class** | 8 |
| **Subsidiary Hazard Class** | 3 |
| **Packing Group** | I |

**Special Precautions for User** No special precautions required

## SECTION 15. REGULATORY INFORMATION

**International Inventories**
X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | IECSC | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| sec-Butylamine | X | X | X | 237-732-7 | X | X | X | X | X | X | KE-25291 |

**National Regulations**

## SECTION 16. OTHER INFORMATION

| | |
|---|---|
| **Prepared By** | Health, Safety and Environmental Department |
| **Creation Date** | 09-Nov-2010 |
| **Revision Date** | 27-Jul-2026 |
| **Revision Summary** | Not applicable. |

**Training Advice**
Chemical incident response training.

**Legend**

**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** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

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

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

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit
**ACGIH** - American Conference of Governmental Industrial Hygienists
**DNEL** - Derived No Effect Level
**RPE** - Respiratory Protective Equipment
**LC50** - Lethal Concentration 50%
**NOEC** - No Observed Effect Concentration
**PBT** - Persistent, Bioaccumulative, Toxic

**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
**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road
**OECD** - Organisation for Economic Co-operation and Development
**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code
**MARPOL** - International Convention for the Prevention of Pollution from Ships
**ATE** - Acute Toxicity Estimate
**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

**The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text**

## End of Safety Data Sheet