# SAFETY DATA SHEET

Version 8.7
Revision Date 02.07.2024
Print Date 03.07.2024

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

### 1.1 Product identifiers

Product name : n-Butyl vinyl ether (stabilised with 100 ppm KOH) for synthesis

Product Number : 8.01847
Catalogue No. : 801847
Brand : Millipore
CAS-No. : 111-34-2

### 1.2 Other means of identification

No data available

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

Identified uses : Chemical for synthesis

### 1.4 Details of the supplier of the safety data sheet

Company : Merck Life Science Ltd
Level 26 PwC Tower, 15 Customs Street West
1010 AUCKLAND
NEW ZEALAND

Telephone : 0800 936 666
E-mail address : customersupport.anz@merckgroup.com

### 1.5 Emergency telephone

Emergency Phone # : 0800 0800 425 459 (CHEMTREC NZ)
+64 9 801 0034 (Int'l CHEMTREC)

## SECTION 2: Hazards identification

### 2.1 GHS Classification

Flammable Liquids (Category B), H225
Acute toxicity, Dermal (Category E), H313

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger



The life science business of Merck operates as MilliporeSigma in the US and Canada

Hazard Statements

| | |
|---|---|
| H225 | Highly flammable liquid and vapor. |
| H313 | May be harmful in contact with skin. |

Precautionary Statements

Prevention

| | |
|---|---|
| P210 | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ ventilating/ lighting/ equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |

Response

| | |
|---|---|
| P303 + P361 + P353 | IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. |
| P312 | Call a POISON CENTER or doctor/ physician if you feel unwell. |
| P370 + P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. |

Storage

| | |
|---|---|
| P403 + P235 | Store in a well-ventilated place. Keep cool. |

Disposal

| | |
|---|---|
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

### 2.3 Other hazards

May form explosive peroxides.

## SECTION 3: Composition/information on ingredients

Substance / Mixture : Mixture

### 3.2 Mixtures

Formula : C6H12O

Molecular weight : 100.16 g/mol

**Hazardous ingredients**

| Component | | Classification | Concentration |
|---|---|---|---|
| **butyl vinyl ether** | | | |
| CAS-No.<br>EC-No. | 111-34-2<br>203-860-7 | Flam. Liq. 2; Eye Dam./Irrit. 2; Skin Sens. 1; Aquatic Chronic 3; H225, H319, H317, H412 | <= 100 % |

For the full text of the H-Statements mentioned in this Section, see Section 16.



The life science business of Merck operates as MilliporeSigma in the US and Canada

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

**General advice**
Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Remove contact lenses.

**If swallowed**
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 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**
Carbon dioxide (CO2) Foam Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

### 5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.



The life science business of Merck operates as MilliporeSigma in the US and Canada

## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb® ). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

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

**Storage conditions**
Protected from light.Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

**Storage class**
Storage class (TRGS 510): 3: Flammable liquids

### 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

**Ingredients with workplace control parameters**
Contains no substances with occupational exposure limit values.



The life science business of Merck operates as MilliporeSigma in the US and Canada

## 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

**Body Protection**
Flame retardant antistatic protective clothing.

**Respiratory protection**
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| a) | Physical state | liquid |
| b) | Color | colorless |



The life science business of Merck operates as MilliporeSigma in the US and Canada

| | | |
|---|---|---|
| c) | Odor | No data available |
| d) | Melting point/freezing point | Melting point/ range: -92 °C |
| e) | Initial boiling point and boiling range | 94 °C |
| f) | Flammability (solid, gas) | No data available |
| g) | Upper/lower flammability or explosive limits | No data available |
| h) | Flash point | -12 °C - closed cup |
| i) | Autoignition temperature | 190 °C<br>at 1,013 hPa - DIN 51794 |
| j) | Decomposition temperature | No data available |
| k) | pH | No data available |
| l) | Viscosity | Viscosity, kinematic: 0.57 mm2/s at 20 °C - OECD Test Guideline 1140.45 mm2/s at 40 °C - OECD Test Guideline 114<br><br>Viscosity, dynamic: 0.44 mPa.s at 20 °C - OECD Test Guideline 1140.34 mPa.s at 40 °C - OECD Test Guideline 114 |
| m) | Water solubility | 0.46 g/l at 20 °C - OECD Test Guideline 105 |
| n) | Partition coefficient: n-octanol/water | log Pow: 2.9 at 22 °C - OECD Test Guideline 117 - Bioaccumulation is not expected. |
| o) | Vapor pressure | 53.65 hPa at 20 °C - OECD Test Guideline 104 |
| p) | Density | 0.78 g/cm3 at 20 °C |
| | Relative density | No data available |
| q) | Relative vapor density | No data available |
| r) | Particle characteristics | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | none |

## 9.2 Other safety information

| | |
|---|---|
| Relative vapor density | 3.46 |



The life science business of Merck operates as MilliporeSigma in the US and Canada

## SECTION 10: Stability and reactivity

### 10.1 Reactivity
Formation of peroxides possible.
Vapors may form explosive mixture with air.

### 10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
caustic potash (0.01 %)

### 10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
aluminium chloride
boron trifluoride
iodine
polymerisation initiators

### 10.4 Conditions to avoid
Warming.
Moisture.

### 10.5 Incompatible materials
No data available

### 10.6 Hazardous decomposition products
Peroxides
In the event of fire: see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Mixture**

**Acute toxicity**
LD50 Oral - Rat - male - 10,300 mg/kg
(OECD Test Guideline 401)
Symptoms: mucosal irritations, Inhalation may lead to the formation of oedemas in the respiratory tract.
LC50 Inhalation - Rat - male and female - 4 h - > 33.3 mg/l - vapor

(OECD Test Guideline 403)
Acute toxicity estimate Dermal - 3,301 mg/kg
(Calculation method)
LD50 Dermal - Rabbit - male - 3,300 mg/kg
(OECD Test Guideline 402)

**Skin corrosion/irritation**
Remarks: Mixture causes skin irritation.
Skin - Rabbit
Result: Irritations - 4 h



The life science business of Merck operates as MilliporeSigma in the US and Canada

(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.
Dermatitis

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Mixture may cause an allergic skin reaction.
Local lymph node assay (LLNA) - Mouse
Result: positive
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

### 11.2 Additional Information

prolonged or repeated exposure can cause:, narcosis

Systemic effects:

After absorption of large quantities:

In high concentrations:

Circulatory collapse
narcosis

After absorption:

Cough
Headache
Dizziness
Unconsciousness



The life science business of Merck operates as MilliporeSigma in the US and Canada

Absorption can result in damage to:

Liver
Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

**Components**

**butyl vinyl ether**

**Acute toxicity**
LD50 Oral - Rat - male - 10,300 mg/kg
(OECD Test Guideline 401)
Symptoms: mucosal irritations, Inhalation may lead to the formation of oedemas in the respiratory tract.
LC50 Inhalation - Rat - male and female - 4 h - > 33.3 mg/l - vapor
(OECD Test Guideline 403)
LD50 Dermal - Rabbit - male - 3,300 mg/kg
(OECD Test Guideline 402)

**Skin corrosion/irritation**
Skin - Rabbit
Result: Irritations - 4 h
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.
Dermatitis

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Local lymph node assay (LLNA) - Mouse
Result: positive
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
Acute inhalation toxicity - mucosal irritations, Inhalation may lead to the formation of oedemas in the respiratory tract.



The life science business of Merck operates as MilliporeSigma in the US and Canada

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

**Mixture**

| | |
|---|---|
| Toxicity to fish | static test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h<br>(OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | semi-static test EC50 - Daphnia magna (Water flea) - > 27.9 mg/l - 48 h<br>(OECD Test Guideline 202) |
| Toxicity to algae | static test ErC50 - Pseudokirchneriella subcapitata (algae) - 19.8 mg/l - 72 h<br>(OECD Test Guideline 201) |
| | static test EC10 - Pseudokirchneriella subcapitata (algae) - 5.92 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria | static test EC50 - Pseudomonas putida - > 8,000 mg/l - 16 h<br>(DIN 38421 TEIL 8) |

### 12.2 Persistence and degradability

| | |
|---|---|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 83 % - Readily biodegradable.<br>(OECD Test Guideline 310) |

### 12.3 Bioaccumulative potential
No data available

### 12.4 Mobility in soil
No data available

### 12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties
No data available

### 12.7 Other adverse effects
No data available

**Components**

**butyl vinyl ether**

| | |
|---|---|
| Toxicity to fish | static test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h<br>(OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic | semi-static test EC50 - Daphnia magna (Water flea) - > 27.9 mg/l - 48 h |



The life science business of Merck operates as MilliporeSigma in the US and Canada

| | |
|---|---|
| invertebrates | (OECD Test Guideline 202) |
| Toxicity to algae | static test ErC50 - Pseudokirchneriella subcapitata (algae) - 19.8 mg/l - 72 h<br>(OECD Test Guideline 201) |
| | static test EC10 - Pseudokirchneriella subcapitata (algae) - 5.92 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria | static test EC50 - Pseudomonas putida - > 8,000 mg/l - 16 h<br>(DIN 38421 TEIL 8) |

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 2352 IMDG: 2352 IATA-DGR: 2352

### 14.2 UN proper shipping name

ADR/RID: BUTYL VINYL ETHER, STABILIZED
IMDG: BUTYL VINYL ETHER, STABILIZED
IATA-DGR: Butyl vinyl ether, stabilized

### 14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA-DGR: 3

### 14.4 Packaging group

ADR/RID: II IMDG: II IATA-DGR: II

### 14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA-DGR: no

### 14.6 Special precautions for user

None

### 14.7 Incompatible materials

**Other regulations**

Hazchem Code : •3YE



The life science business of Merck operates as MilliporeSigma in the US and Canada

## SECTION 15: Regulatory information

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

**National regulatory information**

HSNO Group Standard Approval: not required
Tracking Required: not required
Approved Handler Cert.: not required

## SECTION 16: Other information

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

| | |
|---|---|
| H225 | Highly flammable liquid and vapor. |
| H313 | May be harmful in contact with skin. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H412 | Harmful to aquatic life with long lasting effects. |

**Further information**

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.



The life science business of Merck operates as MilliporeSigma in the US and Canada