

**3-BUTENENITRILE**

Safety Data Sheet ENEBO575

Date of issue: 26/01/2015

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Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: 3-BUTENENITRILE
Product code	: ENEBO575
Formula	: C4H5N
Synonyms	: ALLYL CYANIDE; VINYLACETONITRILE
Chemical family	: ORGANONITRILE

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

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info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 3	H226
Acute toxicity (oral), Category 3	H301
Acute toxicity (dermal), Category 4	H312
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

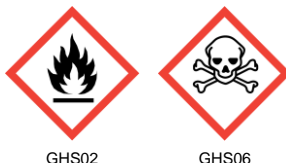
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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS06

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour.
H301 - Toxic if swallowed.
H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P261 - Avoid breathing vapours.
P264 - Wash hands thoroughly after handling.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P312 - Call a doctor if you feel unwell.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type :

Multi-constituent

Name :

3-BUTENENITRILE

CAS-No. :

109-75-1

EC-No. :

203-701-1

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
3-Butenenitrile	(CAS-No.) 109-75-1 (EC-No.) 203-701-1	95 - 100	Flam. Liq. 3, H226 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
2-Butenenitrile	(CAS-No.) 4786-20-3 (EC-No.) 225-335-1	0 - 1	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact :

Wash with plenty of water/.... Get medical advice/attention.

First-aid measures after eye contact :

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation :

May cause respiratory irritation. Overexposure may cause: Cough. Headache. Nausea.

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Symptoms/effects after skin contact	: Causes skin irritation. Harmful in contact with skin.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: Nitriles may be partially metabolized to cyanide in the body. Symptoms of cyanide exposure include rapid respiration, gasping, headache, drop in blood pressure, vomiting, loss of consciousness and death.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid breathing vapours. Provide good ventilation in process area to prevent formation of vapour. Containers must be properly grounded before beginning transfer. Take precautionary measures against static discharge. Use only non-sparking tools.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed.

Incompatible materials : Acids. alcohols. Oxidizing agent. Peroxides.

Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

3-Butenenitrile (109-75-1)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10 ppm Gelest recommended TLV 8 Hr
Lithuania	NRV (mg/m ³)	0.3 mg/m ³

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8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 67.09 g/mol
Colour	: Amber.
Odour	: Distinct.
Odour threshold	: No data available
Refractive index	: 1.405
pH	: No data available
Relative evaporation rate (butylacetate=1)	: ~ 1
Melting point	: No data available
Freezing point	: < -87 °C
Boiling point	: 116 - 119 °C
Flash point	: 24 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour.
Vapour pressure	: ~ 30 mm Hg @ 13°C
Relative vapour density at 20 °C	: 2.3
Relative density	: 0.834
% Volatiles	: 100 %
Solubility	: Slightly. Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable when stored in sealed containers.

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10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Air. Heat. Open flame. Sparks. Direct sunlight.

10.5. Incompatible materials

Acids. alcohols. Peroxides. Oxidizing agent.

10.6. Hazardous decomposition products

Organic amine vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed. Harmful in contact with skin.

3-BUTENENITRILE (109-75-1)

LD50 oral rat	115 mg/kg
ATE CLP (oral)	121.053 mg/kg bodyweight
ATE CLP (dermal)	1237.895 mg/kg bodyweight

3-Butenenitrile (109-75-1)

LD50 oral rat	115 mg/kg
LD50 dermal rabbit	1176 mg/kg
ATE CLP (oral)	115 mg/kg bodyweight
ATE CLP (dermal)	1176 mg/kg bodyweight

2-Butenenitrile (4786-20-3)

LD50 oral rat	501 mg/kg
LD50 oral mouse	396 mg/kg
LD50 oral guinea pig	272
ATE CLP (oral)	501 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause respiratory irritation. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact	: Causes skin irritation. Harmful in contact with skin.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: Nitriles may be partially metabolized to cyanide in the body. Symptoms of cyanide exposure include rapid respiration, gasping, headache, drop in blood pressure, vomiting, loss of consciousness and death.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

3-Butenenitrile (109-75-1)

LC50 fish 1	171 - 195 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2929
UN-No. (IMDG) : 2929
UN-No. (IATA) : 2929
UN-No. (ADN) : 2929
UN-No. (RID) : 2929

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Toxic liquid, flammable, organic, n.o.s.
Proper Shipping Name (ADN) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (RID) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Transport document description (ADR) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (3-BUTENENITRILE), 6.1 (3), II, (D/E)
Transport document description (IMDG) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (3-BUTENENITRILE), 6.1 (3), II
Transport document description (IATA) : UN 2929 Toxic liquid, flammable, organic, n.o.s. (3-BUTENENITRILE), 6.1, II
Transport document description (ADN) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (3-BUTENENITRILE), 6.1 (3), II
Transport document description (RID) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (3-BUTENENITRILE), 6.1 (3), II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 6.1 (3)
Danger labels (ADR) : 6.1, 3



IMDG

Transport hazard class(es) (IMDG) : 6.1 (3)
Danger labels (IMDG) : 6.1, 3



IATA

Transport hazard class(es) (IATA) : 6.1 (3)

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Hazard labels (IATA) : 6.1, 3



ADN

Transport hazard class(es) (ADN) : 6.1 (3)

Danger labels (ADN) : 6.1, 3



RID

Transport hazard class(es) (RID) : 6.1 (3)

Danger labels (RID) : 6.1, 3



14.4. Packing group

Packing group (ADR) : II

Packing group (IMDG) : II

Packing group (IATA) : II

Packing group (ADN) : II

Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : TF1

Special provisions (ADR) : 274

Limited quantities (ADR) : 100ml

Excepted quantities (ADR) : E4

Packing instructions (ADR) : P001, IBC02

Mixed packing provisions (ADR) : MP15

Portable tank and bulk container instructions (ADR) : T11

Portable tank and bulk container special provisions (ADR) : TP2, TP27

Tank code (ADR) : L4BH

Tank special provisions (ADR) : TU15, TE19

Vehicle for tank carriage : FL

Transport category (ADR) : 2

Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28

Special provisions for carriage - Operation (ADR) : S2, S9, S19

Hazard identification number (Kemler No.) : 63

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Orange plates



Tunnel restriction code (ADR) : D/E

- Transport by sea

Special provisions (IMDG) : 274
Limited quantities (IMDG) : 100 ml
Excepted quantities (IMDG) : E4
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T11
Tank special provisions (IMDG) : TP2, TP13, TP27
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : B
Stowage and handling (IMDG) : SW2
Properties and observations (IMDG) : Toxic if swallowed, by skin contact or by inhalation.

- Air transport

PCA Excepted quantities (IATA) : E4
PCA Limited quantities (IATA) : Y641
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 654
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 662
CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A4, A137
ERG code (IATA) : 6F

- Inland waterway transport

Classification code (ADN) : TF1
Special provisions (ADN) : 274, 802
Limited quantities (ADN) : 100 ml
Excepted quantities (ADN) : E4
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EP, EX, TOX, A
Ventilation (ADN) : VE01, VE02
Number of blue cones/lights (ADN) : 2

- Rail transport

Classification code (RID) : TF1
Special provisions (RID) : 274
Limited quantities (RID) : 100ml
Excepted quantities (RID) : E4
Packing instructions (RID) : P001, IBC02
Mixed packing provisions (RID) : MP15
Portable tank and bulk container instructions (RID) : T11
Portable tank and bulk container special provisions (RID) : TP2, TP27
Tank codes for RID tanks (RID) : L4BH
Special provisions for RID tanks (RID) : TU15
Transport category (RID) : 2
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31
Colis express (express parcels) (RID) : CE5
Hazard identification number (RID) : 63

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14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

3-BUTENENITRILE is not on the REACH Candidate List

3-BUTENENITRILE is not on the REACH Annex XIV List

3-BUTENENITRILE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

3-BUTENENITRILE is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : 100 %

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : 3-BUTENENITRILE is listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

Classification remarks : R10 <H226;H301;H312;H315;H319;H335>; Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Irrit. 2	Skin corrosion/irritation, Category 2

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STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

SDS EU (REACH Annex II) - Custom

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