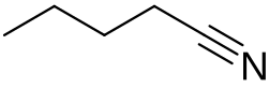
VALERONITRILE FOR SYNTHESIS

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: 06465
Issue date: 4/9/2014 Revision date: 4/1/2026 Supersedes version of: 4/9/2015 Version: 1.0

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

1.1. Product identifier

Product form	:	Substance
Trade name	:	VALERONITRILE FOR SYNTHESIS
IUPAC name	:	Pentanenitrile
EC-No.	:	203-781-8
CAS-No.	:	110-59-8
Product code	:	06465
Type of product	:	nitrile
Formula	:	C5H9N
Chemical structure	:	
Synonyms	:	Butyl cyanide, n-Valeronitrile, 1-Cyanobutane

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

Relevant identified uses

Use of the substance/mixture	:	Laboratory chemicals, Manufacture of substances

1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai
INDIA
T +91 22 6663 6663, F +91 22 6663 6699
info@lobachemie.com, www.lobachemie.com

1.4. Emergency telephone number

Emergency number	:	+ 91 22 6663 6663 (9:00am - 6:00 pm)

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 4	H302

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. Harmful if swallowed.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02 GHS07

Signal word (CLP) : Warning

Hazard statements (CLP) : H226 - Flammable liquid and vapour.
H302 - Harmful if swallowed.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
VALERONITRILE	CAS-No.: 110-59-8 EC-No.: 203-781-8	100

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. If you feel unwell, seek medical advice.
First-aid measures after skin contact : If skin irritation occurs: Get medical advice/attention. Gently wash with plenty of soap and water. Rinse skin with water/shower. Take off immediately all contaminated clothing.
First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion : If you feel unwell, seek medical advice. Rinse mouth out with water. Rinse mouth. Call a poison center or a doctor if you feel unwell.
Self protection of the first-aider : First-aiders should pay attention to their own protection and use the recommended personal protective equipment (see section 8).

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

Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : None under normal conditions.
Symptoms/effects after ingestion : Toxic if swallowed. Harmful if swallowed.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2). Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.
Explosion hazard : May form flammable/explosive vapour-air mixture.
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	:	Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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. No open flames. No smoking. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For non-emergency personnel

Protective equipment	:	Wear recommended personal protective equipment.
Emergency procedures	:	Ventilate spillage area. Evacuate unnecessary personnel. No open flames, no sparks, and no smoking.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Stop release. Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	:	Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
Methods for cleaning up	:	Take up liquid spill into absorbent material. Collect spillage. On land, sweep or shovel into suitable containers. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	:	Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	:	Ensure good ventilation of the work station. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Ground/bond container and receiving equipment.
Storage conditions	:	Keep container tightly closed. Store in original container. Store in a dry place. Store in a well-ventilated place. Keep cool.
Incompatible materials	:	Heat sources.
Packaging materials	:	Always store product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:
Wear recommended personal protective equipment.
Personal protective equipment symbol(s):



Eye and face protection

Eye protection:
Chemical goggles or safety glasses

Skin protection

Skin and body protection:
Wear a mask

Hand protection:
Protective gloves

Respiratory protection

Respiratory protection:
Wear appropriate mask

Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Colourless.
Appearance	:	Clear liquid.
Molecular mass	:	83.13 g/mol
Odour	:	Odourless.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	-96.2 °C
Boiling point	:	139 – 141 °C
Flammability	:	Flammable Flammable liquid and vapour.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	40 °C

Auto-ignition temperature	:	520 °C
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	Not available
Solubility	:	Water: Immiscible Acetone: Miscible
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	7.1 hPa at 20 °C
Vapour pressure at 50°C	:	Not available
Density	:	0.8008 g/cm³ at 20 °C
Relative density	:	Not available
Relative vapour density at 20°C	:	3.46
Particle characteristics	:	Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

10.2. Chemical stability

Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Open flame. Overheating. Direct sunlight. Heat. Sparks. Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	:	Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

11.2. Information on other hazards

Other information

Potential adverse human health effects and symptoms : Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

12.2. Persistence and degradability

VALERONITRILE FOR SYNTHESIS (110-59-8)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations.

Additional information : Handle empty containers with care because residual vapours are flammable. Flammable vapours may accumulate in the container. Do not re-use empty containers.

Ecological waste information : Hazardous waste due to toxicity.

SECTION 14: Transport information

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

14.1. UN number or ID number

UN-No. (ADR) : UN 1992

UN-No. (IMDG)	:	UN 1992
UN-No. (IATA)	:	UN 1992
UN-No. (ADN)	:	UN 1992
UN-No. (RID)	:	UN 1992

14.2. UN proper shipping name

Proper Shipping Name (ADR)	:	FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IMDG)	:	FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IATA)	:	Flammable liquid, toxic, n.o.s.
Proper Shipping Name (ADN)	:	FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (RID)	:	FLAMMABLE LIQUID, TOXIC, N.O.S.
Transport document description (ADR) (ADR)	:	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. VALERONITRILE, 3 (6.1), II, (D/E)
Transport document description (IMDG)	:	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II
Transport document description (IATA)	:	UN 1992 Flammable liquid, toxic, n.o.s. VALERONITRILE, 3 (6.1), II
Transport document description (ADN)	:	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II
Transport document description (RID)	:	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II

14.3. Transport hazard class(es)

ADR

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

Danger labels (ADR) : 3, 6.1

:



IMDG

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

Danger labels (IMDG) : 3, 6.1

:



IATA

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

Danger labels (IATA) : 3, 6.1

:



ADN

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

Danger labels (ADN) : 3, 6.1

:



RID

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

Danger labels (RID) : 3, 6.1

:



14.4. Packing group

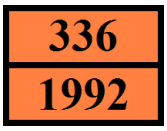
Packing group (ADR)	:	II
Packing group (IMDG)	:	II
Packing group (IATA)	:	II
Packing group (ADN)	:	II
Packing group (RID)	:	II

14.5. Environmental hazards

Dangerous for the environment	:	No
Marine pollutant	:	No
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-D
Other information	:	No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR)	:	FT1
Special provisions (ADR)	:	274
Limited quantities (ADR)	:	1l
Excepted quantities (ADR)	:	E2
Packing instructions (ADR)	:	P001, IBC02
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T7
Portable tank and bulk container special provisions (ADR)	:	TP2
Tank code (ADR)	:	L4BH
Tank special provisions (ADR)	:	TU15
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, S22
Hazard identification number (Kemler No.)	:	336
Orange plates	:	
Tunnel restriction code (ADR)	:	D/E
EAC code	:	•3WE
APP code	:	A(fl)

Transport by sea

Special provisions (IMDG)	:	274
Limited quantities (IMDG)	:	1 L
Excepted quantities (IMDG)	:	E2
Packing instructions (IMDG)	:	P001
IBC packing instructions (IMDG)	:	IBC02
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP2, TP13
Stowage category (IMDG)	:	B
Stowage and handling (IMDG)	:	SW2
Properties and observations (IMDG)	:	Flammable toxic liquid which is not specified by name in this class or, on account of its characteristics, in some other class. Toxic if swallowed, by skin contact or by inhalation.
MFAG-No	:	131

Air transport

PCA Excepted quantities (IATA)	:	E2
PCA Limited quantities (IATA)	:	Y341
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	352
PCA max net quantity (IATA)	:	1L

CAO packing instructions (IATA)	:	364
CAO max net quantity (IATA)	:	60L
Special provisions (IATA)	:	A3
ERG code (IATA)	:	3HP

Inland waterway transport

Classification code (ADN)	:	FT1
Special provisions (ADN)	:	274, 802
Limited quantities (ADN)	:	1 L
Excepted quantities (ADN)	:	E2
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)	:	FT1
Special provisions (RID)	:	274
Limited quantities (RID)	:	1L
Excepted quantities (RID)	:	E2
Packing instructions (RID)	:	P001, IBC02
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T7
Portable tank and bulk container special provisions (RID)	:	TP2
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
Colis express (express parcels) (RID)	:	CE7
Hazard identification number (RID)	:	336

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	**Applicable on**
3(a)	VALERONITRILE FOR SYNTHESIS
3(b)	VALERONITRILE FOR SYNTHESIS
40.	VALERONITRILE FOR SYNTHESIS

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

Council Regulation (EC) for the control of dual-use items

Not listed on the COUNCIL REGULATION (EC) of dual-use items.

Explosives Precursors Regulation (EU 2019/1148)

Not listed on the Explosives Precursors list (EU)

Drug Precursors Regulation (EC 273/2004)

Not listed on the Drug Precursors list (EU)

National regulations

Denmark

Class for fire hazard	:	Class II-1
Store unit	:	5 liter
Classification remarks	:	R10 <H226;H302>; Emergency management guidelines for the storage of flammable liquids must be followed

Germany

Water hazard class (WGK)	:	WGK 3, Highly hazardous to water (Classification according to AwSV).

Netherlands

SZW-lijst van kankerverwekkende stoffen	:	The substance is not listed
SZW-lijst van mutagene stoffen	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	:	The substance is not listed

Poland

Polish National Regulations	:	Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225). Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797). The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended). Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923). Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154). Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended). The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488) Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended). Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141). ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891) Regulation of the Minister of Health of 25 August 2015 on the method of marking places, pipelines, and containers and tanks used for storing or containing hazardous substances or hazardous mixtures (J.o.L. 2015, item 1368 as amended)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ACGIH	American Conference of Governmental Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstracts Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic

Abbreviations and acronyms:	
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Flam. Liq. 3	Flammable liquids, Category 3
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.