

CROTONONITRILE

Safety Data Sheet

Supersedes: 02/05/2022

Revision: 1.2

Revision date: 12/12/2023

SECTION 1: Identification

1.1 Identification

Product form	:	Substance
Substance name	:	Crotononitrile (mixture of cis and trans isomer)
CAS No.	:	4786-20-3
EC/ List No.	:	225-335-1
Formula	:	C ₄ H ₅ N
Molecular weight	:	67.09 g/mol
Synonyms	:	2-Butenenitrile, mixture of cis and trans

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

Use of the substance/mixture	:	Laboratory chemicals, Manufacture of substances
Relevant identified uses	:	Intermediate
Uses advised against:	:	Not known

1.3 Details of the supplier of the safety data sheet

Godavari Biorefineries Ltd.
45/47, Somaiya bhavan,
Mahatma Gandhi Road,
Fort, Mumbai -400001, INDIA.
T 0091 22 22048272
Email: alka@somaiya.com
www.somaiya.com

1.4 Emergency telephone Number

Emergency number	:	0091 2423 279308 0091 22 22048272 (Monday – Friday - 09.30 hrs to 18.00 hrs)
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SECTION 2: Hazard(s) identification

GHS classification

2.1 Classification of the substance or mixture

H225	:	Flammable liquid, Category 2
H302	:	Acute oral Toxicity Category 4
H315	:	Skin Corrosion/irritation Category 2
H319	:	Serious Eye Damage/Eye Irritation Category 2A
H335	:	Specific target organ toxicity -single exposure (Category 3), Respiratory system.

2.2 GHS labeling

Hazard pictograms



GHS02

GHS07

Signal word

: Danger

Hazard statements

H225	:	Highly flammable liquid and vapour.
H302	:	Harmful if swallowed.
H315	:	Causes skin irritation
H319	:	Causes serious eye irritation

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H335 : May cause respiratory irritation.

Precautionary statements

P210 : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 : Avoid breathing vapours.

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

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

P501 : Dispose of contents/ container to an approved waste disposal plant

Supplemental Hazard information : None

2.3 Other hazards

Not data available.

2.4 Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/Information on ingredients

3.1 Substance

Name	Product Identifier CAS No. EC No.	Concentration %	GHS Classification
Crotononitrile	4786-20-3 225-335-1	Minimum 98	Flam. Liq. 2, H225 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Full text of hazard classes and H-statements: see section 16

3.2 Mixture

Not applicable.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information : Consult a physician. Show this safety data sheet to the doctor in attendance.

Inhalation : Remove from exposure, lie down. Move to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required

Skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Eye contact : Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 Minutes.

Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

4.3 Indication of any immediate medical attention and special treatment needed

No data available,

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Water spray. Carbon dioxide (CO₂). Dry chemical. Chemical foam. Cool closed containers exposed to fire with water spray.
- Unsuitable extinguishing media : No data available

5.2 Special hazards arising from the substance or mixture

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

- Firefighting instructions : As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Take precautionary measures against static discharges.

6.2 Environmental precautions

See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g., sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not let this chemical enter the environment.

6.4 Reference to other sections

For personal protection see section 8

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Precautions for safe handling : Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation. Use explosion-proof equipment. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammable's area. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end uses

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits:

Component	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Crotononitrile	(Vacated) TWA: 5 mg/m ³	IDLH: 25 mg/m ³	TWA: 5 mg/m ³

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8.2 Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled safely.

Personal protective equipment :     
 Protective goggles. Gloves. Protective clothing. Face shield. Gas mask with filter.

Materials for protective clothing : GIVE EXCELLENT RESISTANCE: Butyl Rubber. Polyethylene/Ethylene Vinyl Alcohol. Viton. GIVE GOOD RESISTANCE: Neoprene. GIVE LESS RESISTANCE: Natural Rubber. PVC. GIVE POOR RESISTANCE: Polyethylene. PVA.

Hand protection : Gloves.

Eye protection : Safety glasses.

Skin and body protection : Head/neck protection. Corrosion-proof clothing.

Respiratory protection : Wear gas mask with filter type A if conc. in air > exposure limit. High vapour/ gas concentration: self-contained respirator.

Thermal hazard protection : None.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Liquid.

Colour : Colourless to yellowish

Odour : No Data Available

pH : No Data Available

Melting point : No Data Available

Freezing point : No Data Available

Initial boiling point/boiling range : 105 – 125 °C

Flash Point : 20 °C – closed cup

Relative evaporation rate : No Data Available

Relative density : 0.824 g/cm³ at 25 °C

Relative vapour density at 20°C : No Data Available

Specific gravity/ density : No Data Available

Molecular mass : 67.09 g/mol

Flammability(Solid, Gas) : No Data Available

Upper/lower flammability or Explosive limit : No Data Available

Solubility : No Data Available

Vapor pressure : No Data Available

Vapour density : No Data Available

Evaporation Rate : No Data Available

Partition coefficient n-octanol / water : No Data Available

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Auto-ignition temperature	:	No Data Available
Decomposition temperature	:	No Data Available
Viscosity	:	No Data Available
Explosive Limits	:	No Data Available
Oxidizing properties	:	No Data Available

9.2 Other information

No Data Available.

SECTION 10: Stability and reactivity

10.1. Reactivity	:	No special reactivity has been reported.
10.2 Chemical Stability	:	Stable under normal conditions
10.3 Possibility of hazardous reactions	:	None under normal processing
10.4 Conditions to avoid	:	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products
10.5 Incompatible materials	:	Oxidizing agents, Acids
10.6 Hazardous decomposition products	:	Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (Nox), cyanide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity LD50	:	Species: Rat Value: 501 mg/kg
LD50	:	Species: Rabbit Value: 60 mg/kg
Acute dermal toxicity	:	No data available
Acute inhalation toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Eye damage/irritation	:	No data available
Respiratory or skin sensitization	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Teratogenicity	:	No data available.
Reproductive toxicity	:	No data available.
Specific target organ toxicity (single exposure)	:	Respiratory system.
Specific target organ toxicity (repeated exposure)	:	No data available.
Aspiration hazard	:	No data available.
Signs and Symptoms of Exposure	:	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Synergistic effects	:	No data available.

SECTION 12: Ecological information

Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

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12.1 Toxicity

Toxicity

Crustacea : No data available
Algae : No data available

12.2 Persistence and degradability

No Data Available.

12.3 Bio accumulative potential

No Data Available.

12.4 Mobility in soil

No Data Available.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product disposal : Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system but exert extra care in igniting as this material is highly flammable. Observe all federal, state and local regulations when disposing of the substance.

Packaging: : Dispose of as unused product.

SECTION 14: Transport Information

Marine transport (IMDG)

UN number : 1993
Proper shipping name and description : Flammable Liquid, N.O.S. (Crotononitrile)
Class : 3
Packaging group : II
Hazard Identification Number : 33
EmS code : F-E, S-D
Marine pollutant : No

Air transport ICAO/IATA

UN number : 1993
Proper shipping name and description : Flammable Liquid, N.O.S. (Crotononitrile)
Class : 3
Packaging group : II
Hazard Labels : 6.1, 3
Environmentally hazardous : No

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Department of Transportation (DOT)

UN number : 1993

Proper shipping name and description : Flammable Liquid, N.O.S. (Crotononitrile)

Class : 3

Packaging group : II

Reportable Quantity (RQ) : Not applicable

Poison Inhalation Hazard : No

3 - Flammable liquid

Hazard labels (DOT) :



SECTION 15: Regulatory information

15.1 National regulations

Country	National Inventories	Listing
CANADA	NDSL	Listed
JAPAN	ENCS	Listed
PHILIPPINES	PICCS	Listed
SOUTH KOREA	KECL	Listed
USA	TSCA	Listed
EUROPE	EINECS	Listed

SECTION 16: Other information

16.1 Hazard statements

H225 : Highly flammable liquid and vapour

H302 : Harmful if swallowed

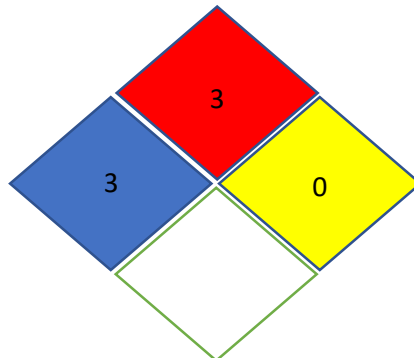
H315 : Causes skin irritation

H319 : Causes serious eye irritation

H335 : May cause respiratory irritation

16.2 NFPA Rating

:



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16.3 Abbreviations and acronyms

:	PBT =Persistent Bioaccumulative and Toxic
	vPvB= Very Persistent and Very Bioaccumulative
	SCBA= Self Contained Breathing Apparatus
	NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit
	OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit
	OELTWA= Occupational Exposure Limit Time Weighted Averages
	IDLH= Immediately Dangerous to Life or Health
	UEL= Upper Explosive Limit
	LEL= Lower Explosive Limit
	RTECS= Registry of Toxic Effects of Chemical Substances
	NTP=National Toxicology Programm
	IARC= International Agency for Research on Cancer
	EPA=Environmental Protection Agency
	TSCA= Toxic Substances Control Act
	NFPA= National Fire Protection Association
	CSR=Chemical Safety Report
	BCF = Bio Concentration Factor
	DNEL = Derived No Effect Level
	PNEC = Predicted No Effect Concentration
	TLV = Threshold Limit Value
	ACGIH = American Conference of Governmental Industrial Hygienist
	REACH = Registration, Evaluation .Authorisation and Restriction of Chemicals
	CLP = Classification, Labelling and Packaging
	LD / LC = Lethal Doses / Lethal Concentration
	GHS = Globally Harmonised System
	ADR = Accord europeen relative au transport international de marchandises
	IMDG-Code = International Maritime Code for Dangerous Goods
	EmS = Emergency measures on Sea
	ICAO = International Civil Aviation Organization
	IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

16.4 Further information:

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and Godavari Biorefineries Ltd. assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.