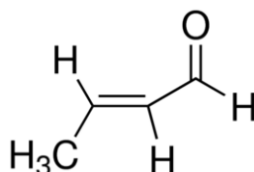


MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

Product form : Substance
:
CAS-No. : 123-73-9
Product code : 03033
Chemical structure :



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

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

SPAN LAB
UNIT NO. 14, SKY INDUSTRIAL ESTATE, WALIV, VASAI (E)
401208 Mumbai - INDIA
PH: +91 9820509929
info@spanlab.in www.spanlab.in

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, H225
Category 2
Acute toxicity (oral), H301
Category 3
Acute toxicity (dermal), H311
Category 3
Acute toxicity (inhal.), H330
Category 2
Skin corrosion/irritation, H315
Category 2

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Serious eye damage/eye irritation, Category 1 H318
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation H335
Specific target organ toxicity — Repeated exposure, Category 2 H373
Hazardous to the aquatic environment — Acute Hazard, Category 1 H400

Full text of H statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Muta.Cat.3; R68

F; R11

T+; R26

T; R24/25

Xn; R48/22

Xi; R41

Xi; R37/38

N; R50

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS05

GHS06

GHS08

GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.
H301+H311 - Toxic if swallowed or in contact with skin
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H330 - Fatal if inhaled.
H335 - May cause respiratory irritation.
H373 - May cause damage to organs through prolonged or repeated exposure.
H400 - Very toxic to aquatic life.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe vapours, spray, dust, fume, gas.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P201 - Obtain special instructions before use.
P370+P378 - In case of fire: Use media other than water to extinguish.

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P310 - Immediately call a POISON CENTER or doctor.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : CROTONALDEHYDE FOR SYNTHESIS
CAS-No. : 123-73-9

Full text of R- and 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 after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
First-aid measures after skin contact : Take off immediately all contaminated clothing. Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion : Rinse mouth. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects : May cause damage to organs. Causes damage to organs.
Symptoms/effects after inhalation : May cause respiratory irritation.
Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : Toxic 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 : Carbon dioxide. Dry powder. Foam. Water spray.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.
Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

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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.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Use personal protective equipment as required.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Very toxic to aquatic life.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spillage. On land, sweep or shovel into suitable containers.

6.4. Reference to other sections

No additional information available

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 : Avoid contact with skin and eyes. Use only non-sparking tools. Keep away from sources of ignition - No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapours.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.

Storage conditions : Keep in fireproof place. Keep container tightly closed.

Incompatible materials : Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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8.2. Exposure controls

Hand protection	: Protective gloves
Eye protection	: Chemical goggles or safety glasses
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Molecular mass	: 70.09 g/mol
Colour	: Pale yellow.
Odour	: Pungent.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -76 °C
Freezing point	: No data available
Boiling point	: 104 °C
Flash point	: 9 °C
Auto-ignition temperature	: 160 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: 32 mm Hg at 20 °C
Relative vapour density at 20 °C	: 2.41
Relative density	: No data available
Density	: 0.846 g/cm ³
Solubility	: Water: Soluble
Log Pow	: 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	: 0.025 - 0.195 vol %

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Heat. Sparks.

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 toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation: Fatal if inhaled.

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye damage.

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 : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Toxic if swallowed. Toxic in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life.

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12.2. Persistence and degradability

No additional information available

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. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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.

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecology - waste materials : Hazardous waste due to toxicity.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR) : 1143

UN-No. (IMDG) : 1143

UN-No. (IATA) : 1143

UN-No. (ADN) : 1143

UN-No. (RID) : 1143

14.2. UN proper shipping name

Proper Shipping Name (ADR) : CROTONALDEHYDE

Proper Shipping Name (IMDG) : CROTONALDEHYDE

Proper Shipping Name (IATA) : Crotonaldehyde

Proper Shipping Name (ADN) : CROTONALDEHYDE

Proper Shipping Name (RID) : CROTONALDEHYDE

Transport document description (ADR) : UN 1143 CROTONALDEHYDE, 6.1 (3), I, (C/D), ENVIRONMENTALLY HAZARDOUS

Transport document description (IMDG) : UN 1143 CROTONALDEHYDE, 6.1 (3), I, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS (13°C c.c.)

Transport document description (IATA) : UN 1143 Crotonaldehyde, 6.1, ENVIRONMENTALLY HAZARDOUS

Transport document description (ADN) : UN 1143 CROTONALDEHYDE, 6.1 (3), I, ENVIRONMENTALLY HAZARDOUS

Transport document description (RID) : UN 1143 CROTONALDEHYDE, 6.1 (3), I, ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

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

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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)



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) : I

Packing group (IMDG) : I

Packing group (IATA) : Not applicable

Packing group (ADN) : I

Packing group (RID) : I

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

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14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: TF1
Special provisions (ADR)	: 324, 354, 386
Limited quantities (ADR)	: 0
Excepted quantities (ADR)	: E0
Packing instructions (ADR)	: P602
Mixed packing provisions (ADR)	: MP8, MP17
Portable tank and bulk container instructions (ADR)	: T20
Portable tank and bulk container special provisions (ADR)	: TP2
Tank code (ADR)	: L10CH
Tank special provisions (ADR)	: TU14, TU15, TE19, TE21
Vehicle for tank carriage	: FL
Transport category (ADR)	: 1
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV1, CV13, CV28
Special provisions for carriage - Operation (ADR)	: S2, S4, S9, S14
Hazard identification number (Kemler No.)	: 663
Orange plates	:



Tunnel restriction code (ADR)	: C/D
EAC code	: •2WE
APP code	: A(fl)

- Transport by sea

Special provisions (IMDG)	: 324, 354, 386
Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P602
Tank instructions (IMDG)	: T20
Tank special provisions (IMDG)	: TP2, TP13, TP35
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: SW1, SW2
Flash point (IMDG)	: 13°C c.c.
Properties and observations (IMDG)	: Colourless, mobile liquid with a pungent odour. Turns to pale yellow in contact with light and air. Miscible with water. Flashpoint: 13°C c.c. Highly toxic if swallowed, by skin contact or by inhalation. May cause lung damage.
MFAG-No	: 131P

- Air transport

PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: Forbidden
CAO max net quantity (IATA)	: Forbidden
Special provisions (IATA)	: A2

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ERG code (IATA) : 6Fi

- Inland waterway transport

Classification code (ADN) : TF1
Special provisions (ADN) : 324, 354, 386, 802
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
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) : 324, 354, 386
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P602
Mixed packing provisions (RID) : MP8, MP17
Portable tank and bulk container instructions (RID) : T20
Portable tank and bulk container special provisions (RID) : TP2
Tank codes for RID tanks (RID) : L10CH
Special provisions for RID tanks (RID) : TU14, TU15, TU38, TE21, TE22
Transport category (RID) : 1
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31
Hazard identification number (RID) : 663

14.7. Transport in bulk according to Annex II of MARPOL 73/78 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

CROTONALDEHYDE FOR SYNTHESIS is not on the REACH Candidate List

CROTONALDEHYDE FOR SYNTHESIS is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 3, severe hazard to water (Classification according to AwSV; ID No. 239)

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

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Netherlands

SZW-lijst van kankerverwekkende stoffen	: The substance is not 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 I-1
Store unit	: 1 liter
Classification remarks	: F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed
Recommendations Danish Regulation	: 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 The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-statements:

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
R11	Highly flammable
R24/25	Toxic in contact with skin and if swallowed

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R26	Very toxic by inhalation
R37/38	Irritating to respiratory system and skin
R41	Risk of serious damage to eyes
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed
R50	Very toxic to aquatic organisms
R68	Possible risk of irreversible effects
F	Highly flammable
N	Dangerous for the environment
T	Toxic
T+	Very toxic
Xi	Irritant
Xn	Harmful

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