

SAFETY DATA SHEET

Version 6.1
Revision Date 03/14/2018
Print Date 11/12/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acrylonitrile

Product Number : 31564

Brand : Sigma-Aldrich

Index-No. : 608-003-00-4

CAS-No. : 107-13-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 Spruce Street
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 3), H311

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Skin sensitisation (Category 1), H317

Carcinogenicity (Category 1B), H350

Reproductive toxicity (Category 2), H361

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Acute aquatic toxicity (Category 2), H401

Chronic aquatic toxicity (Category 2), H411

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

Hazard statement(s)

H225

Highly flammable liquid and vapour.

H301 + H311 + H331

Toxic if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

H318

Causes serious eye damage.

H335

May cause respiratory irritation.

H350

May cause cancer.

H361

Suspected of damaging fertility or the unborn child.

H411

Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201

Obtain special instructions before use.

P202

Do not handle until all safety precautions have been read and understood.

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.

P261

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264

Wash skin thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P271

Use only outdoors or in a well-ventilated area.

P272

Contaminated work clothing should not be allowed out of the workplace.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P310 + P330

IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P311

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.

P305 + P351 + P338 + P310

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

P333 + P313

If skin irritation or rash occurs: Get medical advice/ attention.

P362

Take off contaminated clothing and wash before reuse.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P391

Collect spillage.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P403 + P235

Store in a well-ventilated place. Keep cool.

P405

Store locked up.

P501

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

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator., Vesicant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Vinyl cyanide

Formula : C_3H_3N

Molecular weight : 53.06 g/mol

CAS-No. : 107-13-1

EC-No. : 203-466-5

Index-No. : 608-003-00-4

Hazardous components

Component	Classification	Concentration
Acrylonitrile		
	Flam. Liq. 2; Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1; Carc. 1B; Repr. 2; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H225, H301 + H311 + H331, H315, H317, H318, H335, H350, H361, H411	<= 100 %

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

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

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

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Acrylonitrile	107-13-1	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Lower Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	1 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption 15 minute ceiling value		

		C	10 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption 15 minute ceiling value		
		Substance listed; for more information see OSHA document 1910.1045		
		See 1910.1045		

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 37 min

Material tested: Camapren® (KCL 722 / Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|--------------------|---|
| a) Appearance | Form: clear, liquid
Colour: colourless |
| b) Odour | No data available |
| c) Odour Threshold | No data available |

d) pH	No data available
e) Melting point/freezing point	Melting point/range: -83 °C (-117 °F) - lit.
f) Initial boiling point and boiling range	77 °C (171 °F) - lit.
g) Flash point	-5 °C (23 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 17 %(V) Lower explosion limit: 3 %(V)
k) Vapour pressure	115 hPa at 20 °C (68 °F)
l) Vapour density	1.83 - (Air = 1.0)
m) Relative density	0.806 g/cm ³
n) Water solubility	soluble
o) Partition coefficient: n-octanol/water	log Pow: 0.25
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

Surface tension	27.3 mN/m at 24 °C (75 °F)
Relative vapour density	1.83 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agents, Copper

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x)

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 81 mg/kg

LC50 Inhalation - Rat - male - 4 h - 2.09 mg/l

LD50 Dermal - Rabbit - 226 mg/kg

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: May cause sensitisation by skin contact.

(OECD Test Guideline 406)

Germ cell mutagenicity

No data available

Carcinogenicity

Possible human carcinogen

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Acrylonitrile)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Acrylonitrile)

OSHA: OSHA specifically regulated carcinogen (Acrylonitrile)

Reproductive toxicity

Suspected human reproductive toxicant

No data available

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: AT5250000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.,
Cough, Shortness of breath, Headache, Nausea

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 7.4 - 10.0 mg/l - 48 h(Acrylonitrile)

12.2 Persistence and degradability

Biodegradability Biotic/Aerobic - Exposure time 28 d(Acrylonitrile)

12.3 Bioaccumulative potential

Bioaccumulation Lepomis macrochirus - 14 d
 - 9.94 µg/l(Acrylonitrile)

Bioconcentration factor (BCF): 48

12.4 Mobility in soil

No data available(Acrylonitrile)

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1093 Class: 3 (6.1) Packing group: I
Proper shipping name: Acrylonitrile, stabilized
Reportable Quantity (RQ) : 100 lbs

Poison Inhalation Hazard: No

ALL INNER PACKAGINGS MUST BE IN METAL CANS FOR FXG

IMDG

UN number: 1093 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: ACRYLONITRILE, STABILIZED
Marine pollutant : yes

IATA

UN number: 1093 Class: 3 (6.1) Packing group: I
Proper shipping name: Acrylonitrile, stabilized
IATA Passenger: Not permitted for transport
ALL INNER PACKAGINGS MUST BE PACKED WITH ABSORBANT MATERIAL IN TIGHTLY CLOSED METAL OR RIGID PLASTIC RECEPTACLES, ALL INNER PACKAGINGS MUST BE IN METAL CANS FOR FX AIR

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Acrylonitrile	CAS-No. 107-13-1	Revision Date 1993-04-24
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Pennsylvania Right To Know Components

Acrylonitrile	CAS-No. 107-13-1	Revision Date 1993-04-24
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New Jersey Right To Know Components

Acrylonitrile	CAS-No. 107-13-1	Revision Date 1993-04-24
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California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No. 107-13-1	Revision Date 2007-09-28
Acrylonitrile		

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

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956
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