

## Material Safety Data Sheet

Version 4.3

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acrylamide

Product Number : A3553

Brand : Sigma

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Irritant, Teratogen, Reproductive hazard, Mutagen

## Target Organs

Nerves., Kidney

## GHS Classification

Acute toxicity, Oral (Category 3)  
Acute toxicity, Inhalation (Category 4)  
Acute toxicity, Dermal (Category 3)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)  
Skin sensitization (Category 1)  
Germ cell mutagenicity (Category 1B)  
Carcinogenicity (Category 1B)  
Reproductive toxicity (Category 2)  
Acute aquatic toxicity (Category 3)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H301 + H311

Toxic if swallowed or in contact with skin

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

H319

Causes serious eye irritation.

H332

Harmful if inhaled.

H340

May cause genetic defects.

H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H402 Harmful to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.  
P280 Wear protective gloves/ protective clothing.  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

**HMIS Classification**

**Health hazard:** 2  
**Chronic Health Hazard:** \*  
**Flammability:** 1  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 2  
**Fire:** 1  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** Toxic if inhaled. Causes respiratory tract irritation.  
**Skin** Toxic if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Acrylic acid amide  
2-Propenamide

Formula : C<sub>3</sub>H<sub>5</sub>NO  
Molecular Weight : 71.08 g/mol

Component		Concentration
<b>Acrylamide</b>		
CAS-No.	79-06-1	-
EC-No.	201-173-7	
Index-No.	616-003-00-0	
Registration number	01-2119463260-48-XXXX	

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**4. 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**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**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.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Light sensitive. Keep in a dry place.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Acrylamide	79-06-1	TWA	0.3 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Remarks	Skin designation			
		TWA	0.03 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	0.03 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			
		TWA	0.03 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A Potential for dermal absorption			
		TWA	0.03 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

### Hand 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.

### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

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

### Hygiene measures

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	powder
Colour	no data available

### Safety data

pH	5.2 - 6 at 500 g/l
Melting point/freezing point	Melting point/range: 82 - 86 °C (180 - 187 °F) - lit.
Boiling point	125 °C (257 °F) at 33 hPa (25 mmHg) - lit.
Flash point	138 °C (280 °F) - closed cup
Ignition temperature	424 °C (795 °F)
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	2.1 hPa (1.6 mmHg) at 84.50 °C (184.10 °F) 0.04 hPa (0.03 mmHg) at 40 °C (104 °F) 0.0900 hPa (0.0675 mmHg) at 25 °C (77 °F)
Density	no data available
Water solubility	200 g/l at 20 °C (68 °F)
Partition coefficient: n-octanol/water	log Pow: -0.67
Relative vapour density	2.45 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Acids, Oxidizing agents, Iron and iron salts., Copper, Brass, Free radical initiators

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 124 mg/kg

**Inhalation LC50**

LC50 Inhalation - rat - 4 h - > 1,500 mg/m<sup>3</sup>

**Dermal LD50**

LD50 Dermal - rat - 400 mg/kg

Remarks: Blood:Other changes. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Transaminases. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Peptidases.

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - rabbit - Mild skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - rabbit - Eye irritation - 24 h

**Respiratory or skin sensitization**

May cause allergic skin reaction.

**Germ cell mutagenicity**

May alter genetic material. In vivo tests showed mutagenic effects

**Carcinogenicity**

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Possible human carcinogen

IARC: 2A - Group 2A: Probably carcinogenic to humans (Acrylamide)

NTP: Reasonably anticipated to be a human carcinogen (Acrylamide)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

May cause reproductive disorders.

**Teratogenicity**

Suspected human reproductive toxicant

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects****Inhalation**

Toxic if inhaled. Causes respiratory tract irritation.

**Ingestion**

Toxic if swallowed.

**Skin**

Toxic if absorbed through skin. Causes skin irritation.

**Eyes**

Causes eye irritation.

**Synergistic effects**

no data available

**Additional Information**

RTECS: AS3325000

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**12. ECOLOGICAL INFORMATION****Toxicity****Toxicity to fish**

mortality NOEC - *Lepomis macrochirus* - 35 mg/l - 96 h

LC50 - *Pimephales promelas* (fathead minnow) - 90 mg/l - 96 h

**Toxicity to daphnia  
and other aquatic  
invertebrates**

mortality NOEC - *Daphnia magna* (Water flea) - 60 mg/l - 48 h

EC50 - *Daphnia magna* (Water flea) - 160 mg/l - 48 h

**Persistence and degradability****Bioaccumulative potential****Bioaccumulation**

*Oncorhynchus mykiss* (rainbow trout) - 72 h

Bioconcentration factor (BCF): 1.65

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

no data available

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**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 2074 Class: 6.1

Packing group: III

Proper shipping name: Acrylamide, solid

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

**IMDG**

UN number: 2074    Class: 6.1    Packing group: III    EMS-No: F-A, S-A  
Proper shipping name: ACRYLAMIDE, SOLID  
Marine pollutant: No

**IATA**

UN number: 2074    Class: 6.1    Packing group: III  
Proper shipping name: Acrylamide, solid

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**15. REGULATORY INFORMATION**

**OSHA Hazards**

Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Irritant, Teratogen, Reproductive hazard, Mutagen

**SARA 302 Components**

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

	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-07-01

**SARA 313 Components**

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

	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-07-01

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-07-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-07-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-07-01

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	79-06-1	2007-09-28
Acrylamide		

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**16. OTHER INFORMATION**

**Further information**

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