1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acrylamide
Product Number : A3553
Brand : Sigma
Supplier : Sigma-Aldrich Corporation
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

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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Acrylic acid amide
           2-Propenamide

Formula: C₃H₅NO
Molecular Weight: 71.08 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
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<tbody>
<tr>
<td>Acrylamide</td>
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<tr>
<td>CAS-No.</td>
<td>79-06-1</td>
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<td>EC-No.</td>
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<td>Registration number</td>
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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.

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)

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.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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<td>Limits for Air Contaminants</td>
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<td>Remarks</td>
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<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants -</td>
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<tr>
<td>TWA</td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
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<tr>
<td>Skin notation</td>
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<tr>
<td>TWA</td>
<td></td>
<td>0.03 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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</tr>
<tr>
<td>Central Nervous System impairment</td>
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<td>TWA</td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>Confirmed animal carcinogen with unknown relevance to humans</td>
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<td>TWA</td>
<td>0.03 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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<tr>
<td>Danger of cutaneous absorption</td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<tr>
<td>See Appendix A Potential for dermal absorption</td>
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<td>TWA</td>
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</table>
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.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

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.

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

**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/m3

**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

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

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.

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
Proper shipping name: ACRYLAMIDE, SOLID
Marine pollutant: No

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

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:

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

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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

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16. OTHER INFORMATION
Further information
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