1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Acrylamide

Product Number: A3553
Brand: Sigma
Index-No.: 616-003-00-0

CAS-No.: 79-06-1

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

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

Telephone: +1 800-325-5832
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)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Oral (Category 1), Peripheral nervous system, H372
Acute aquatic toxicity (Category 3), H402

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)
H301: Toxic if swallowed.
H312 + H332: Harmful in contact with skin or if inhaled
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs (Peripheral nervous system) through prolonged or repeated exposure if swallowed.
H402 Harmful to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe 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.
P278 Wear protective gloves/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.
P322 Specific measures (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
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 - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms : Acrylic acid amide
            2-Propenamide

Formula : C₃H₅NO
Molecular weight : 71.08 g/mol
CAS-No. : 79-06-1
EC-No. : 201-173-7
Index-No. : 616-003-00-0
Registration number : 01-2119463260-48-XXXX

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylamide</td>
<td>Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)</td>
<td>&lt;= 100%</td>
</tr>
</tbody>
</table>
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
   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 (NOx)

5.3 Advice for firefighters
   Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
   No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
   Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. 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
   Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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 formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. 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.

Light sensitive. Keep in a dry place.

### 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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylamide</td>
<td>79-06-1</td>
<td>TWA</td>
<td>0.300000 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
</tbody>
</table>

Remarks: Skin designation

<table>
<thead>
<tr>
<th>Value</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0.030000 mg/m³</td>
</tr>
</tbody>
</table>

Potential Occupational Carcinogenic
See Appendix A
Potential for dermal absorption

<table>
<thead>
<tr>
<th>Value</th>
<th>USA. ACGIH Threshold Limit Values (TLV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0.030000 mg/m³</td>
</tr>
</tbody>
</table>

Remarks: Central Nervous System impairment
Confirmed animal carcinogen with unknown relevance to humans
Danger of cutaneous absorption

#### 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**
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 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: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677727, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677727, 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, 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 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).

**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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: powder</td>
</tr>
<tr>
<td>b) Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>5.2 - 6 at 500 g/l</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: 82 - 86 °C (180 - 187 °F) - lit.</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>125 °C (257 °F) at 33 hPa (25 mmHg) - lit.</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>138 °C (280 °F) - closed cup</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>
| k) Vapour pressure | 2.1 hPa (1.6 mmHg) at 84.50 °C (184.10 °F)  
2.04 hPa (0.03 mmHg) at 40 °C (104 °F)  
0.0900 hPa (0.0675 mmHg) at 25 °C (77 °F) |
| l) Vapour density | 2.45 - (Air = 1.0) |
| m) Relative density | No data available |
| n) Water solubility | 200 g/l at 20 °C (68 °F) |
| o) Partition coefficient: n-octanol/water | log Pow: -0.67 |
| 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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative vapour density</td>
<td>2.45 - (Air = 1.0)</td>
</tr>
</tbody>
</table>
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
No data available

10.4 Conditions to avoid
No data available

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

10.6 Hazardous decomposition products
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 - 177 mg/kg
LC50 Inhalation - Rat - 4 h - > 1,500 mg/m3
LD50 Dermal - Rabbit - 1,141 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
May cause allergic skin reaction.
(OECD Test Guideline 406)

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
Animal testing did not show any effects on foetal development.
May cause reproductive disorders. Suspected human reproductive toxicant
Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Oral - Causes damage to organs through prolonged or repeated exposure. - Peripheral nervous system

Aspiration hazard
No data available

Additional Information
RTECS: AS3325000
Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 90 mg/l - 96 h
NOEC - Cyprinus carpio (Carp) - 5 mg/l - 28 d

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

12.2 Persistence and degradability
Biodegradability
Result: 100 % - Readily biodegradable
(OECD Test Guideline 301D)

12.3 Bioaccumulative potential
Bioaccumulation
Oncorhynchus mykiss (rainbow trout) - 72 h
- 710 µg/l

Bioconcentration factor (BCF): 1.65

12.4 Mobility in soil
No data available

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.
Harmful to aquatic life.
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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
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

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

15. REGULATORY INFORMATION

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

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2008-11-03 |

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

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2008-11-03 |

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

Massachusetts Right To Know Components

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2008-11-03 |

Pennsylvania Right To Know Components

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2008-11-03 |

New Jersey Right To Know Components

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2008-11-03 |

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

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2007-09-28 |

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

| Acrylamide | CAS-No. 79-06-1 | Revision Date 2007-09-28 |

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

- Acute Tox.: Acute toxicity
- Aquatic Acute: Acute aquatic toxicity
- Carc.: Carcinogenicity
- Eye Irrit.: Eye irritation
- H301: Toxic if swallowed.
- H312: Harmful in contact with skin.
- H312 + H332: Harmful in contact with skin or if inhaled
- 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.

**HMIS Rating**

- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 1
- Physical Hazard: 0

**NFPA Rating**

- Health hazard: 2
- Fire Hazard: 1
- 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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