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

1.1. Product identifier
Product form : Mixtures
Product name : Acrolein/Acrylonitrile
Product code : AL0-101222
Product group : Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Certified reference material for laboratory use only

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Phenova
6390 Joyce Dr. Suite 100
80403 Golden - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number
Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
- Flam. Liq. 2 H225
- Acute Tox. 3 (Oral) H301
- Acute Tox. 3 (Dermal) H311
- Carc. 1B H350
- STOT SE 1 H370

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements
Labeling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP) :
- GHS02
- GHS06
- GHS08

Signal word (CLP) : Danger
Hazardous ingredients : Acrolein, acrylonitrile, inhibited, methanol
Hazard statements (CLP) :
- H225 - Highly flammable liquid and vapor
- H301+H311 - Toxic if swallowed or in contact with skin
- H350 - May cause cancer
- H370 - Causes damage to organs

Precautionary statements (CLP) :
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P233 - Keep container tightly closed
- P260 - Do not breathe dust/lume/gas/mist/vapors/spray
- P270 - Do no eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
Acrolein/Acrylonitrile
Safety Data Sheet
according to Regulation (EC) No. 453/2010

EUH phrases:
EUH208 - Contains acrylonitrile, inhibited(107-13-1). May produce an allergic reaction

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol (Component)</td>
<td>(CAS No) 67-56-1</td>
<td>99.8</td>
<td>Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 STOT SE 1, H370</td>
</tr>
<tr>
<td>Acrolein (Component)</td>
<td>(CAS No) 107-02-8</td>
<td>0.1</td>
<td>Flam. Liq. 2, H225 Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Dermal), H311 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1B, H314 Aquatic Acute 1, H400 (M=10)</td>
</tr>
<tr>
<td>acrylonitrile, inhibited</td>
<td>(CAS No) 107-13-1</td>
<td>0.1</td>
<td>Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Dermal), H310 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 1B, H350 STOT SE 3, H335 Aquatic Chronic 2, H411</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol (Component)</td>
<td>(CAS No) 67-56-1</td>
<td>(3 &lt;= C &lt; 10) STOT SE 2, H371 (10 &lt;= C) STOT SE 1, H370</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general: Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor/physician. IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing.
First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a POISON CENTER or doctor/physician. Wash with plenty of soap and water. Wash contaminated clothing before reuse.
First-aid measures after eye contact: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/injuries after skin contact: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.
Symptoms/injuries after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media
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 vapor.
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Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Advice for firefighters

Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection. Avoid breathing dust/fume/gas/mist/vapors/spray.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No naked lights. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene measures: Do no eat, drink or smoke when using this product. Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

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.

Storage conditions: Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible products: Strong bases. Strong acids.

Incompatible materials: Sources of ignition. Direct sunlight. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Acrolein (107-02-8)</th>
<th>Belgium</th>
<th>Short time value (mg/m³)</th>
<th>0.23 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Short time value (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>VLE (mg/m³)</td>
<td>0.25 mg/m³</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>VLE (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>TRGS 900 Occupational exposure limit value (mg/m³)</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>TRGS 900 Occupational exposure limit value (ppm)</td>
<td>0.09 ppm</td>
<td></td>
</tr>
<tr>
<td>Italy - Portugal - USA ACGIH</td>
<td>ACGIH Ceiling (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (mg/m³)</td>
<td>0.23 mg/m³</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (mg/m³)</td>
<td>0.7 mg/m³</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (ppm)</td>
<td>0.3 ppm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acrylonitrile, inhibited (107-13-1)</th>
<th>Belgium</th>
<th>Limit value (mg/m³)</th>
<th>4.4 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Limit value (ppm)</td>
<td>2 ppm</td>
<td></td>
</tr>
</tbody>
</table>

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8.2. Exposure controls

Appropriate engineering controls: Either local exhaust or general room ventilation is usually required.


Hand protection: Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.

Eye protection: Chemical goggles or safety glasses. Safety glasses.

Skin and body protection: Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.

Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Color: colorless.

Odor: characteristic.

pH: No data available

Melting point: No data available

Freezing point: No data available

Boiling point: No data available

Flash point: No data available
Acrolein/Acrylonitrile
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Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Highly flammable liquid and vapor
Relative density : No data available
Solubility : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Not established. Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials
Strong acids. Strong bases.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Toxic if swallowed. Toxic in contact with skin.

<table>
<thead>
<tr>
<th>Acrolein/Acrylonitrile</th>
<th>ATE (oral)</th>
<th>100.000 mg/kg body weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATE (dermal)</td>
<td>300.000 mg/kg body weight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acrolein (107-02-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
</tr>
<tr>
<td>ATE (oral)</td>
</tr>
<tr>
<td>ATE (dermal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acrylonitrile, inhibited (107-13-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
</tr>
<tr>
<td>ATE (oral)</td>
</tr>
<tr>
<td>ATE (dermal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
</tr>
<tr>
<td>ATE (oral)</td>
</tr>
<tr>
<td>ATE (dermal)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified

Based on available data, the classification criteria are not met
## Acrolein/Acrylonitrile

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**Serious eye damage/irritation:** Not classified
- Based on available data, the classification criteria are not met

**Respiratory or skin sensitization:** Not classified
- Based on available data, the classification criteria are not met

**Germ cell mutagenicity:** Not classified
- Based on available data, the classification criteria are not met

**Carcinogenicity:** May cause cancer.
- May cause cancer

**Reproductive toxicity:** Not classified
- Based on available data, the classification criteria are not met

**Specific target organ toxicity (single exposure):** Causes damage to organs.
- Based on available data, the classification criteria are not met

**Specific target organ toxicity (repeated exposure):** Not classified
- Based on available data, the classification criteria are not met

**Aspiration hazard:** Not classified
- Based on available data, the classification criteria are not met

**Potential Adverse human health effects and symptoms:**
- Toxic if swallowed. Toxic in contact with skin.

### SECTION 12: Ecological information

#### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
<th>LC50 fish 2</th>
<th>TLM fish 1</th>
<th>TLM fish 2</th>
<th>TLM other aquatic organisms 1</th>
<th>Threshold limit algae 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein (107-02-8)</td>
<td>0.014 - 0.04 mg/l (96 h; Pimephales promelas)</td>
<td>0.051 mg/l (48 h; Daphnia magna; LOCOMOTOR EFFECT)</td>
<td>0.016 - 0.08 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss))</td>
<td>0.08 mg/l 24 h; Salmo gairdneri (Oncorhynchus mykiss)</td>
<td>0.08 ppm (Salmo salar)</td>
<td>&lt; 1 mg/l (96 h)</td>
<td>0.04 mg/l (192 h; Microcystis aeruginosa)</td>
</tr>
<tr>
<td>acrylonitrile, inhibited (107-13-1)</td>
<td>24 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)</td>
<td>7.55 mg/l (48 h; Daphnia magna; TOXICITY TEST)</td>
<td>25 mg/l (96 h; Brachydanio rerio)</td>
<td>11.8 mg/l (96 h; Lepomis macrochirus; SOFT WATER)</td>
<td>14.3 mg/l (96 h; Pimephales promelas; HARD WATER)</td>
<td>1 - 10,96 h</td>
<td>1 - 10,96 h</td>
</tr>
<tr>
<td>methanol (67-56-1)</td>
<td>15400 mg/l (96 h; Lepomis macrochirus; LETHAL)</td>
<td>&gt; 10000 mg/l (48 h; Daphnia magna; LETHAL)</td>
<td>10800 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)</td>
<td>24500 mg/l (48 h; Daphnia magna)</td>
<td>6600 mg/l (16 h; Pseudomonas putida)</td>
<td>530 mg/l (192 h; Microcystis aeruginosa)</td>
<td>8000 mg/l (168 h; Scenedesmus quadricauda)</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein/Acrylonitrile</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acrolein (107-02-8)</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein/Acrylonitrile</td>
<td>Readily biodegradable in water. Biodegradable in the soil.</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.72 g O²/g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>2 g O²/g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>0.30 % ThOD</td>
</tr>
</tbody>
</table>
Acrolein/Acrylonitrile
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11.3. Persistence and degradability

**Acrolein/Acrylonitrile**

- **Inherently biodegradable. Not readily biodegradable in water. Biodegradable in the soil.**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.72 g O²/g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.39 g O²/g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>3.17 g O²/g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>22 % ThOD</td>
</tr>
</tbody>
</table>

**methanol (67-56-1)**

- **Readily biodegradable in water. Biodegradable in the soil.**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.6 - 1.12 g O²/g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.42 g O²/g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>1.5 g O²/g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>0.40 - 0.73 % ThOD</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

**Acrolein/Acrylonitrile**

- **Not established.**

**Acrolein (107-02-8)**

- **BCF fish 1**: 344 (672 h; Lepomis macrochirus)
- **Log Pow**: -0.68 (Experimental value)
- **Bioaccumulative potential**: Low potential for bioaccumulation (BCF < 500).

**acrylonitrile, inhibited (107-13-1)**

- **BCF fish 1**: 48 (672 h; Lepomis macrochirus; Fresh water)
- **Log Pow**: -0.9 - 0.3 (Experimental value)
- **Bioaccumulative potential**: Low potential for bioaccumulation (BCF < 500).

**methanol (67-56-1)**

- **BCF fish 1**: < 10 (Leuciscus idus)
- **Log Pow**: -0.77 (Experimental value; Other, Experimental value; Other)
- **Bioaccumulative potential**: Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

**Acrolein (107-02-8)**

- **Surface tension**: 0.024 N/m (20 °C)
- **Ecology - soil**: Toxic to flora.

**acrylonitrile, inhibited (107-13-1)**

- **Surface tension**: 0.027 N/m (20 °C)

**methanol (67-56-1)**

- **Surface tension**: 0.023 N/m (20 °C)

12.5. Results of PBT and vPvB assessment

- **No additional information available**

12.6. Other adverse effects

- **Avoid release to the environment**

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- **Waste disposal recommendations**: Dispose in a safe manner in accordance with local/national regulations.
- **Additional information**: Handle empty containers with care because residual vapors are flammable.
- **Ecology - waste materials**: Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA

14.1. UN number

- **UN-No**: 1992
- **UN-No. (IATA)**: 1992
- **UN-No. (IMDG)**: 1992
- **UN-No. (ADN)**: 1992
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according to Regulation (EC) No. 453/2010

14.2. UN proper shipping name
Proper Shipping Name: FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IATA): FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IMDG): FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (ADN): FLAMMABLE LIQUID, TOXIC, N.O.S.
Transport document description: UN 1992 (methanol(67-56-1)), 3 (6.1), I, (C/E)

14.3. Packing group
Class (UN): 3
Classification code (UN): FT1
Class (IATA): 3
Class (IMDG): 3
Class (ADN): 3
Hazard labels (UN): 3, 6.1

14.4. Packing group
Packing group (UN): I
Packing group (IATA): I
Packing group (IMDG): I

14.5. Environmental hazards
Other information: No supplementary information available.

14.6. Special precautions for user
14.6.1. Overland transport
Hazard identification number (Kemler No.): 336
Classification code (UN): FT1
Orange plates:
Special provision (ADR): 274
Transport category (ADR): 1
Tunnel restriction code: C/E
Limited quantities (ADR): 0
Excepted quantities (ADR): E0
EAC: •3WE
APP: A(fl)

14.6.2. Transport by sea
No additional information available

14.6.3. Air transport
No additional information available

14.6.4. Inland waterway transport
Carriage prohibited (ADN): No

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
Contains no REACH candidate substance

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15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information


Other information : None.

PHV SDS EU

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