Safety Data Sheet

Cat. # 786-1216

G-Alum™ Adjuvant Kit

Size: 1 kit
Aluminum Solution
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Revision date: 5/11/2017

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

1.1. Product identifier

Product form: Mixture
Product name: Aluminum Solution
Product code: 196A
Product group: Trade product

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

1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Belfast Centre)</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Royal Victoria Hospital</td>
<td></td>
<td></td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Birmingham Centre)</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
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<tr>
<td></td>
<td>City Hospital</td>
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<td>0344 892 0111</td>
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<td>Gwenwyn Ward, Llandough Hospital</td>
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<td>National Poisons Information Service Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Royal Infirmary of Edinburgh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital</td>
<td></td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP</td>
<td>0344 892 0111</td>
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<td></td>
<td>Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td></td>
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Serious eye damage/eye irritation, Category 2 H319
Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
Causes serious eye irritation.
## 2.2. Label elements

### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

<table>
<thead>
<tr>
<th>Hazard pictograms (CLP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS07</td>
</tr>
</tbody>
</table>

**CLP Signal word**: Warning

**Hazard statements (CLP)**: 
- H319 - Causes serious eye irritation.

**Precautionary statements (CLP)**: 
- P264 - Wash hands, forearms and face thoroughly after handling.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 - IF eye irritation persists: Get medical advice/attention.

## 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>
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</thead>
<tbody>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>&gt;= 80</td>
<td>Not classified</td>
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<tr>
<td>aluminium sulfate, octadecahydrate</td>
<td>(CAS-No.) 7784-31-8 (EC-No.) 233-135-0</td>
<td>10 - 50</td>
<td>Eye Irrit. 2, H319</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**First-aid measures after inhalation**: Remove person to fresh air and keep comfortable for breathing.

**First-aid measures after skin contact**: Wash skin with plenty of water.

**First-aid measures after eye contact**: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**First-aid measures after ingestion**: Call a poison center or a doctor if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/effects after eye contact**: Eye irritation.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media**: Water spray. Dry powder. Foam. Carbon dioxide.

**Special hazards arising from the substance or mixture**: Toxic fumes may be released.

### 5.3. Advice for firefighters

**Protection during firefighting**: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**

**Emergency procedures**: Ventilate spillage area. Avoid contact with skin and eyes.

**For emergency responders**

**Protective equipment**: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

### 6.2. Environmental precautions

Avoid release to the environment.
6.3. Methods and material for containment and cleaning up
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
aluminium sulfate, octadecahydrate (7784-31-8)
United Kingdom - Occupational Exposure Limits
WEL TWA (mg/m³) : 2 mg/m³

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties
Physical state : Liquid
Colour : No data available
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Not applicable
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Aluminum Solution
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Solubility: No data available
Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified

aluminium sulfate, octadecahydrate (7784-31-8)
LD50 oral rat: > 9000 mg/kg (Rat, Literature study, Oral)

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

aluminium sulfate, octadecahydrate (7784-31-8)
LC50 fish 1: 214.6 - 228.5 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Anhydrous form)

12.2. Persistence and degradability
aluminium sulfate, octadecahydrate (7784-31-8)
Persistence and degradability: Biodegradability: not applicable.
Chemical oxygen demand (COD): Not applicable
ThOD: Not applicable
BOD (% of ThOD): Not applicable
12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>aluminium sulfate, octadecahydrate (7784-31-8)</th>
<th>BCF fish 1</th>
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<tbody>
<tr>
<td></td>
<td>76 - 190 (OECD 305: Bioconcentration: Flow-Through Fish Test, 60 day(s), Salmo salar, Flow-through system, Fresh water, Experimental value, Anhydrous form)</td>
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</tbody>
</table>

Bioaccumulative potential Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>aluminium sulfate, octadecahydrate (7784-31-8)</th>
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<tr>
<td>Ecology - soil</td>
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<tr>
<td>No (test)data on mobility of the substance available.</td>
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12.5. Results of PBT and vPvB assessment

Component

<table>
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<tr>
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<tr>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
</tr>
<tr>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
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12.6. Other adverse effects

No additional information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods


SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

<table>
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<th>UN-No. (ADR)</th>
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<tbody>
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<td>UN-No. (IATA)</td>
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<tr>
<td>UN-No. (ADN)</td>
<td>: Not applicable</td>
</tr>
<tr>
<td>UN-No. (RID)</td>
<td>: Not applicable</td>
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</table>

14.2. UN proper shipping name

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<th>Proper Shipping Name (ADR)</th>
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<tbody>
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<td>Proper Shipping Name (IMDG)</td>
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<td>Proper Shipping Name (IATA)</td>
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<td>Proper Shipping Name (ADN)</td>
<td>: Not applicable</td>
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<tr>
<td>Proper Shipping Name (RID)</td>
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</table>

14.3. Transport hazard class(es)

| ADR | : Not applicable |
| Transport hazard class(es) (ADR) |
| IMDG | : Not applicable |
| Transport hazard class(es) (IMDG) |
| IATA | : Not applicable |
| Transport hazard class(es) (IATA) |
| ADN | : Not applicable |
| Transport hazard class(es) (ADN) |
| RID | : Not applicable |
| Transport hazard class(es) (RID) |

14.4. Packing group

| Packing group (ADR) | : Not applicable |
| Packing group (IMDG) | : Not applicable |
| Packing group (IATA) | : Not applicable |
| Packing group (ADN) | : Not applicable |
| Packing group (RID) | : Not applicable |

14.5. Environmental hazards

| Dangerous for the environment | : No |
| Marine pollutant | : No |
| Other information | : No supplementary information available |

14.6. Special precautions for user

Overland transport

Not applicable
Transport by sea
Not applicable

Air transport
Not applicable

Inland waterway transport
Not applicable

Rail transport
Not applicable

14.7. Transport in bulk according to Annex II of Marpol 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
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

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

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Eye Irrit. 2</th>
<th>Serious eye damage/eye irritation, Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions: GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

- Product form: Mixture
- Product name: Precipitating Agent
- EC Index-No.: 019-002-00-8
- EC-No.: 215-181-3
- CAS-No.: 1310-58-3
- Product code: 335P
- Type of product: Solution, Group
- Formula: KOH
- Synonyms: caustic potash / caustic potash liquor, 2%≤conc<5%, aqueous solutions / caustic potash, in aqueous solution; potassium-lye / caustic potash, solid / lye, 2%≤conc<5%, aqueous solutions / potash liquor, 2%≤conc<5%, aqueous solutions / potash lye, 2%≤conc<5% / potassa, 2%≤conc<5%, aqueous solutions / potassium hydroxide, 2%≤conc<5%, aqueous solutions / potassium hydroxide, in aqueous solution / potassium hydroxide, solid / potassium hydroxide, electrolytic, lye, 2%≤conc<5%, aqueous solutions

- Product group: Trade product
- BIG No: 20747

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

1.2.1. Relevant identified uses

- Use of the substance/mixture: Chemical intermediate, Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

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<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
</tbody>
</table>
Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4: H302
Skin corrosion/irritation, Category 1A: H314

Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects

Harmful if swallowed. Causes severe skin burns and eye damage.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

- GHS05
- GHS07

CLP Signal word: Danger

Hazard statements (CLP):

- H302 - Harmful if swallowed.
- H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP):

- P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.
- P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P304+P306 - IF INHALED: Remove person to fresh air and keep 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.
- P310 - Immediately call a POISON CENTER or doctor.
- P311 - If contact with eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.继续 rinsing.
- P405 - Store locked up.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

Section 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of REACH annex II

Section 4: First aid measures

4.1. Description of first aid measures

First-aid measures general:


First-aid measures after inhalation:

- Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact:

- Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%; take victim to hospital.

First-aid measures after eye contact:

- Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.

5/11/2017

EN (English)
First-aid measures after ingestion:

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation:

Symptoms/effects after skin contact:
Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact:
Corrosion of the eye tissue.

Symptoms/effects after ingestion:

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Adapt extinguishing media to the environment for surrounding fires.

5.2. Special hazards arising from the substance or mixture
Fire hazard:
DIRECT FIRE HAZARD: Non combustible. INDIRECT FIRE HAZARD: Reactions involving a fire hazard; see "Reactivity Hazard".

Explosion hazard:
INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards; see "Reactivity Hazard".

Hazardous decomposition products in case of fire:
Toxic fumes may be released.

5.3. Advice for firefighters
Precautionary measures fire:
Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions:
Cool tanks/drums with water spray/remove them into safety. Take account of toxic firefighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting:
Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Protective equipment:

Emergency procedures:

6.1.2. For emergency responders
Protective equipment:
Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment:

Methods for cleaning up:
Damaged/cooled tanks must be emptied. Take up liquid spill into absorbent material, e.g.: sand/earth or powdered limestone. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Neutralize small quantities of the liquid spill with sodium bisulfite. Wash away neutralized product with plentiful water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information:
Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.
SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling:
- Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosion-proof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.

Hygiene measures:
- Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions:
- Store locked up. Store in a well-ventilated place. Keep cool.

Storage temperature:
- 20 °C

Heat and ignition sources:
- KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage:

Special rules on packaging:
- SPECIAL REQUIREMENTS: closing. corrosion-proof. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials:
- SUITABLE MATERIAL: iron. glass. synthetic material. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls

Appropriate engineering controls:
- Ensure good ventilation of the work station.

Materials for protective clothing:
- GIVE EXCELLENT RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. PVC. GIVE GOOD RESISTANCE: chloroprene rubber. chlorosulfonated polyethylene. tetrafluoroethylene. polyethylene/ethylenevinylalcohol. GIVE POOR RESISTANCE: leather. natural fibres. PVA

Hand protection:
- Gloves

Eye protection:
- Face shield

Skin and body protection:
- Corrosion-proof clothing

Respiratory protection:
- High gas/vapour concentration: full face mask

Environmental exposure controls:
- Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>56.11 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless to light yellow.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>14 (5 %)</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
</tbody>
</table>
### Precipitating Agent

**Safety Data Sheet**  
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.02 - 1.04</td>
</tr>
<tr>
<td>Density</td>
<td>1016 - 1042 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Water: complete</td>
<td></td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

- **SADT**: Not applicable
- **VOC content**: 0 %
- **Other properties**: Physical properties depending on the concentration. Basic reaction.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

React with many compounds e.g.: with (some) acids.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

Hazardous decomposition products.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

- **Acute toxicity (oral)**: Harmful if swallowed.
- **Acute toxicity (dermal)**: Not classified
- **Acute toxicity (inhalation)**: Not classified

<table>
<thead>
<tr>
<th>Compound</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE CLP (oral)</td>
<td>500 mg/kg bodyweight</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes severe skin burns and eye damage, pH: 14 (5 %)</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Serious eye damage, category 1, implicit, pH: 14 (5 %)</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT—single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT—repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Potential adverse human health effects and symptoms</td>
<td>Causes severe skin burns. Causes serious eye damage.</td>
</tr>
</tbody>
</table>
**Precipitating Agent**

**Safety Data Sheet**

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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**SECTION 12: Ecological information**

**12.1. Toxicity**

Ecology - general: Before neutralisation, the product may represent a danger to aquatic organisms.

Ecology - air: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).


Acute aquatic toxicity: Not classified

Chronic aquatic toxicity: Not classified

**Precipitating Agent (1310-58-3)**

LC50 fish 1: 100 - 1000 mg/l (96 h, Pisces)

**12.2. Persistence and degradability**

**Precipitating Agent (1310-58-3)**

Persistence and degradability: Biodegradability: not applicable.

Chemical oxygen demand (COD): Not applicable

ThOD: Not applicable

BOD (% of ThOD): Not applicable

**12.3. Bioaccumulative potential**

**Precipitating Agent (1310-58-3)**

Bioaccumulative potential: Not bioaccumulative.

**12.4. Mobility in soil**

**Precipitating Agent (1310-58-3)**

Ecology - soil: No (test)data on mobility of the components available.

**12.5. Results of PBT and vPvB assessment**

No additional information available

**12.6. Other adverse effects**

No additional information available

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**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**


Product/Packaging disposal recommendations: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove for physico-chemical/biological treatment.


European List of Waste (LoW) code: 15 01 10* - packaging containing residues of or contaminated by dangerous substances 06 02 04* - sodium and potassium hydroxide

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**SECTION 14: Transport information**

In accordance with ADR / RID / IMDG / IATA / ADN

**14.1. UN number**

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN 1814</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-No. (IMDG)</td>
<td>UN 1814</td>
</tr>
<tr>
<td>UN-No. (IATA)</td>
<td>UN 1814</td>
</tr>
<tr>
<td>UN-No. (ADN)</td>
<td>UN 1814</td>
</tr>
<tr>
<td>UN-No. (RID)</td>
<td>UN 1814</td>
</tr>
</tbody>
</table>

**14.2. UN proper shipping name**

<table>
<thead>
<tr>
<th>Proper Shipping Name (ADR)</th>
<th>Potassium hydroxide solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>POTASSIUM HYDROXIDE SOLUTION</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Potassium hydroxide solution</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>Potassium hydroxide solution</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>Potassium hydroxide solution</td>
</tr>
</tbody>
</table>

Transport document description (ADR): UN 1814 Potassium hydroxide solution, 8, III, (E)

Transport document description (IMDG): UN 1814 POTASSIUM HYDROXIDE SOLUTION, 8, III

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5/11/2017

EN (English)
| Transport document description (IATA) | UN 1814 Potassium hydroxide solution, 8, III |
| Transport document description (ADN) | UN 1814 Potassium hydroxide solution, 8, III |
| Transport document description (RID) | UN 1814 Potassium hydroxide solution, 8, III |

### 14.3. Transport hazard class(es)

**ADR**
- Transport hazard class(es) (ADR) : 8
- Danger labels (ADR) : 8

**IMDG**
- Transport hazard class(es) (IMDG) : 8
- Danger labels (IMDG) : 8

**IATA**
- Transport hazard class(es) (IATA) : 8
- Hazard labels (IATA) : 8

**ADN**
- Transport hazard class(es) (ADN) : 8
- Danger labels (ADN) : 8

**RID**
- Transport hazard class(es) (RID) : 8
- Danger labels (RID) : 8

### 14.4. Packing group

- Packing group (ADR) : III
- Packing group (IMDG) : III
- Packing group (IATA) : III
- Packing group (ADN) : III
- Packing group (RID) : III

### 14.5. Environmental hazards

- Dangerous for the environment : No
- Marine pollutant : No
- Other information : No supplementary information available
14.6. Special precautions for user

Overland transport
Transport regulations (ADR) : Subject
Classification code (ADR) : C5
Hazard identification number (Kemler No.) : 80
Orange plates : 80 1814

Tunnel restriction code (ADR) : E
EAC code : 2R

Transport by sea
Transport regulations (IMDG) : Subject
Special provisions (IMDG) : 223
Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P001, LP01
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : A
Segregation (IMDG) : SG35

Air transport
Transport regulations (IATA) : Subject to the provisions
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y841
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 852
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 856
CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A3
ERG code (IATA) : 8L

Inland waterway transport
Classification code (ADN) : C5
Carriage permitted (ADN) : T

Rail transport
Transport regulations (RID) : Subject
Classification code (RID) : C5

14.7. Transport in bulk according to Annex II of Marpol 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
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
VOC content  :  0 %

15.1.2. National regulations
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporting requirements of the United States SARA Section 313
Listed on the Canadian DSL (Domestic Substances List)

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

SECTION 16: Other information

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>Skin Corr. 1A</td>
<td>Skin corrosion/irritation, Category 1A</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions  :  GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.