Safety Data Sheet

Cat. # BAQ076

Protein Carbonylation Assay

Size: 100 tests (96 well format)
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : PCA Reagent A
Product code : 802P
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>
<td></td>
</tr>
<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>
</tr>
<tr>
<td></td>
<td>City Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre)</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gwenwyn Ward, Llandough Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<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>+4 4 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td></td>
<td></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]

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation, Category 2</td>
<td>H315</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation, Category 2</td>
<td>H319</td>
</tr>
<tr>
<td>Specific target organ toxicity — Single exposure, Category 3,</td>
<td>H335</td>
</tr>
<tr>
<td>Respiratory tract irritation</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.
2.2. Label elements

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

Hazard pictograms (CLP):

![Hazard pictogram](https://example.com/hazard_pictogram.png)

CLP Signal word: Warning

Hazard statements (CLP):
- H315 - Causes skin irritation.
- H319 - Causes serious eye irritation.
- H335 - May cause respiratory irritation.

Precautionary statements (CLP):
- P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P304+P340 - 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.
- P312 - Call a POISON CENTRE or doctor if you feel unwell.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P337+P313 - If eye irritation persists: Get medical advice/attention.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- P403+P405 - Store in a well-ventilated place. Keep container tightly closed.
- 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

<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>Hydrochloric Acid (HCl)</td>
<td></td>
<td>10 - 25</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

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

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

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 inhalation: May cause respiratory irritation.

Symptoms/effects after skin contact: Irritation.

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


5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire: 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
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

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
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: Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Wear personal protective equipment.
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 container tightly closed. Keep cool.

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.

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

### Solubility
- No data available

### Log Pow
- No data available

### Viscosity, kinematic
- No data available

### Viscosity, dynamic
- No data available

### Explosive properties
- No data available

### Explosive limits
- No data available

### Explosive properties
- No data available

### Toxicological information

#### Acute toxicity (oral)
- Not classified

#### Acute toxicity (dermal)
- Not classified

#### Acute toxicity (inhalation)
- Not classified

#### Skin corrosion/irritation
- Causes skin irritation.

#### Serious eye damage/irritation
- Causes serious eye irritation.

#### Respiratory or skin sensitisation
- Not classified

#### Germ cell mutagenicity
- Not classified

#### Reproductive toxicity
- Not classified

#### STOT-single exposure
- May cause respiratory irritation.

#### STOT-repeated exposure
- Not classified

#### Aspiration hazard
- Not classified

### Ecological information

#### 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

### Stability and reactivity

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

#### Chemical stability
- Stable under normal conditions.

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

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

### Hazardous decomposition products
- Hazardous decomposition products.
12.5. Results of PBT and vPvB assessment
No additional information available

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
UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

ADN
Transport hazard class(es) (ADN) : Not applicable

RID
Transport hazard class(es) (RID) : Not applicable

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

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>H315</td>
</tr>
<tr>
<td>H319</td>
</tr>
<tr>
<td>H335</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 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Mixture</td>
</tr>
<tr>
<td>Product name</td>
<td>PCA Reagent B</td>
</tr>
<tr>
<td>EC Index-No.</td>
<td>017-002-01-X</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-595-7</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7647-01-0</td>
</tr>
<tr>
<td>Product code</td>
<td>803P</td>
</tr>
<tr>
<td>Type of product</td>
<td>Solution</td>
</tr>
<tr>
<td>Formula</td>
<td>HCl</td>
</tr>
<tr>
<td>Synonyms</td>
<td>hydrochloric acid, conc=37%, aqueous solution</td>
</tr>
<tr>
<td>Product group</td>
<td>Trade product</td>
</tr>
<tr>
<td>BIG No</td>
<td>29443</td>
</tr>
</tbody>
</table>

### 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: 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

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>
<td></td>
</tr>
<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>
</tr>
<tr>
<td></td>
<td>City Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre)</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gwernwyn Ward, Llandough Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<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 Medical Toxicology Unit,</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guy's &amp; St Thomas' Hospital Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>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]**

- Skin corrosion/irritation, Category 1B: H314
- Serious eye damage/eye irritation, Category 1: H318
- Specific target organ toxicity — Single exposure, Category 3: H335
- Respiratory tract irritation

Full text of H statements: see section 16
PCA Reagent B
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Adverse physicochemical, human health and environmental effects
May cause respiratory irritation. 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):
H314 - Causes severe skin burns and eye damage.
H335 - May cause respiratory irritation.

Precautionary statements (CLP):
P280 - Wear protective gloves, eye protection, face protection.
P260 - Do not breathe vapours, mist.
P271 - Use only outdoors or in a well-ventilated area.
P264 - Wash hands thoroughly after handling.
P310 - Immediately call a POISON CENTER or doctor.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water or shower.
P363 - Wash contaminated clothing before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
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 PE-glycol 400. Wash immediately with lots of water (15 minutes)/shower. 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.

First-aid measures after ingestion:
Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Take the container/vomit to the doctor/hospital. Do not give chemical antidote. Ingestion of large quantities: immediately to hospital.

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. Permanent eye damage.

EN (English) 2/9
Symptoms/effects after ingestion:
Burns to the gastric/intestinal mucosa. Blood in vomit. Possible esophageal perforation. Shock.

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".

5.3. Advice for firefighters
Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions: Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

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
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. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.
Hygiene measures: Observe strict hygiene.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Storage temperature: 2 - 25 °C
Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases. metals. amines.
Storage area: Ventilation at floor level. Keep locked up. Provide for a tub to collect spills. Meet the legal requirements.
### Special rules on packaging

- **SPECIAL REQUIREMENTS**: closing, corrosion-proof, clean, correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

- **MATERIAL TO AVOID**: steel, metal.

---

### 7.3. Specific end use(s)

No additional information available

---

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

PCA Reagent B (7647-01-0)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL/DMEL (Workers)</td>
<td></td>
</tr>
<tr>
<td>Acute - local effects, inhalation</td>
<td>15 mg/m³</td>
</tr>
<tr>
<td>Long-term - local effects, inhalation</td>
<td>8 mg/m³</td>
</tr>
</tbody>
</table>

#### 8.2. Exposure controls

**Appropriate engineering controls:**

Ensure good ventilation of the work station.

**Materials for protective clothing:**

Give good resistance: natural rubber, nitrile rubber

**Hand protection:**

Gloves

**Eye protection:**

Face shield

**Skin and body protection:**

Corrosion-proof clothing

**Respiratory protection:**

Full face mask with filter type B. Full face mask with filter type E. High vapour/gas concentration: self-contained respirator

**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>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Molecular mass</strong></td>
<td>36.46 g/mol</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Colourless</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>Irritating/pungent odour.</td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>&lt; 1</td>
</tr>
<tr>
<td><strong>Relative evaporation rate (butylacetate=1)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Freezing point</strong></td>
<td>-30 °C</td>
</tr>
<tr>
<td><strong>Boiling point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Relative vapour density at 20 °C</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>1190 kg/m³</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Soluble in water.</td>
</tr>
<tr>
<td><strong>Water</strong>: complete</td>
<td></td>
</tr>
<tr>
<td><strong>Log Pow</strong></td>
<td>0.25 (QSAR)</td>
</tr>
<tr>
<td><strong>Viscosity, kinematic</strong></td>
<td>1.933 mm²/s</td>
</tr>
</tbody>
</table>
PCA Reagent B
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Viscosity, dynamic : 2.3 mPa·s (15 °C)
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
VOC content : 0 %
Other properties : Gas/vapour heavier than air at 20°C. Producing fumes/mist. Acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
On exposure to air: release of corrosive mist. Reacts violently with (some) bases. Reacts exothermically with many compounds.

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
Reacts with (strong) oxidizers: release of (highly) toxic gases/vapours (chlorine). Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). Decomposes on exposure to temperature rise: release of (highly) toxic gases/vapours (chlorine).

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
Skin corrosion/irritation : Causes severe skin burns and eye damage.
  pH: < 1
Serious eye damage/irritation : Causes serious eye damage.
  pH: < 1
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

PCA Reagent B (7647-01-0)
IARC group 3 - Not classifiable
Reproductive toxicity : Not classified
STOT-single exposure : May cause respiratory irritation.
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
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

PCA Reagent B (7647-01-0)
LC50 fish 1 282 mg/l (96 h, Gambusia affinis, Pure substance)
EC50 Daphnia 1 < 56 mg/l (72 h, Daphnia magna, Pure substance)
12.2. Persistence and degradability

**PCA Reagent B (7647-01-0)**

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Biodegradability: not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

**PCA Reagent B (7647-01-0)**

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>0.25 (QSAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Low potential for bioaccumulation (Log Kow &lt; 4).</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

**PCA Reagent B (7647-01-0)**

| Ecology - soil | No (test)data on mobility of the components available. May be harmful to plant growth, blooming and fruit formation. |

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

- Product/Packaging disposal recommendations: Treat using the best available techniques before discharge into drains or the aquatic environment. 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. Recycle by distillation. Remove to an authorized dump (Class I). Dehydrate/make insoluble. Immobilize the toxic or harmful components.

### Additional information

- European List of Waste (LoW) code: 15 01 10* - packaging containing residues of or contaminated by dangerous substances 06 01 02* - hydrochloric acid

SECTION 14: Transport information

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

#### 14.1. UN number

- UN-No. (ADR) : UN 1789
- UN-No. (IMDG) : UN 1789
- UN-No. (IATA) : UN 1789
- UN-No. (ADN) : UN 1789
- UN-No. (RID) : UN 1789

#### 14.2. UN proper shipping name

- Proper Shipping Name (ADR) : Hydrochloric acid
- Proper Shipping Name (IMDG) : HYDROCHLORIC ACID
- Proper Shipping Name (IATA) : Hydrochloric acid
- Proper Shipping Name (ADN) : Hydrochloric acid
- Proper Shipping Name (RID) : Hydrochloric acid
- Transport document description (ADR) : UN 1789 Hydrochloric acid, 8, II, (E)
- Transport document description (IMDG) : UN 1789 HYDROCHLORIC ACID, 8, II
- Transport document description (IATA) : UN 1789 Hydrochloric acid, 8, II
- Transport document description (ADN) : UN 1789 Hydrochloric acid, 8, II
- Transport document description (RID) : UN 1789 Hydrochloric acid, 8, II

#### 14.3. 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) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

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) : C1
Hazard identification number (Kemler No.) : 80
Orange plates: 80 1789

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

**Transport by sea**
- Transport regulations (IMDG): Subject
- Packing instructions (IMDG): P001
- IBC packing instructions (IMDG): IBC02
- IBC special provisions (IMDG): B20
- Tank instructions (IMDG): T8
- Tank special provisions (IMDG): TP2
- EmS-No. (Fire): F-A
- EmS-No. (Spillage): S-B
- Stowage category (IMDG): C

Properties and observations (IMDG): Colourless liquid. An aqueous solution of the gas hydrogen chloride. Highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes.

**Air transport**
- Transport regulations (IATA): Subject to the provisions
- PCA Excepted quantities (IATA): E2
- PCA Limited quantities (IATA): Y840
- PCA limited quantity max net quantity (IATA): 0.5L
- PCA packing instructions (IATA): 851
- PCA max net quantity (IATA): 1L
- CAO packing instructions (IATA): 855
- CAO max net quantity (IATA): 30L
- Special provisions (IATA): A3
- ERG code (IATA): 8L

**Inland waterway transport**
- Classification code (ADN): C1
- Carriage permitted (ADN): T

**Rail transport**
- Transport regulations (RID): Subject
- Classification code (RID): C1

### 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
- Subject to reporting requirements of United States SARA Section 313
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on EPA Hazardous Air Pollutant (HAPS)

**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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Irrit. 2</strong></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td><strong>Skin Corr. 1B</strong></td>
</tr>
<tr>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td><strong>Skin Irrit. 2</strong></td>
</tr>
<tr>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td><strong>STOT SE 3</strong></td>
</tr>
<tr>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
</tr>
<tr>
<td><strong>H314</strong></td>
</tr>
<tr>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td><strong>H315</strong></td>
</tr>
<tr>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td><strong>H318</strong></td>
</tr>
<tr>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td><strong>H319</strong></td>
</tr>
<tr>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td><strong>H335</strong></td>
</tr>
<tr>
<td>May cause respiratory 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**: PCA Reagent C
- **Product code**: 804P
- **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)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Not classified

Adverse physicochemical, human health and environmental effects

Suspected of causing cancer. Causes severe skin burns and eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

No labelling applicable

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>trichloroacetic acid</td>
<td>(CAS-No.) 76-03-9 (EC-No.) 200-927-2 (EC Index-No.) 607-004-00-7</td>
<td>50 - 75</td>
<td>Skin Corr. 1A, H314 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>trichloroacetic acid</td>
<td>(CAS-No.) 76-03-9 (EC-No.) 200-927-2 (EC Index-No.) 607-004-00-7</td>
<td>( 1 &lt;=C &lt; 100) STOT SE 3, H335</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 general** : Call a physician immediately.

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

**First aid measures after skin contact** : Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
PCA Reagent C
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion: Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after skin contact: Burns.
Symptoms/effects after eye contact: Serious damage to eyes.
Symptoms/effects after ingestion: Burns.

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

SECTION 5: Firefighting measures
5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: 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
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

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
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Collect spillage.
Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
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. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

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.

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.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</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>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</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>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</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
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

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

trichloroacetic acid (76-03-9)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg (Rat, Oral)</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

**SECTION 12: Ecological information**

**12.1. Toxicity**
Ecology - general: Very toxic to aquatic life with long lasting effects.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

**trichloroacetic acid (76-03-9)**
- LC50 fish 1: 2000 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Static system, Fresh water, Weight of evidence)
- EC50 Daphnia 1: 2000 mg/l (Equivalent or similar to OECD 202, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
- ErC50 (algae): 0.46 mg/l (Other, 14 day(s), Chlorella sp., Static system, Fresh water, Experimental value, Nominal concentration)

**12.2. Persistence and degradability**

**trichloroacetic acid (76-03-9)**
Persistence and degradability: Contains non readily biodegradable component(s).

**12.3. Bioaccumulative potential**

**trichloroacetic acid (76-03-9)**
- BCF fish 1: 0.4 - 1.7 mg/l (6 week(s), Cyprinus carpio, Fresh water, Experimental value)
- Log Pow: 1.33 (Experimental value)
Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

**12.4. Mobility in soil**

**trichloroacetic acid (76-03-9)**
- Surface tension: 0.278 N/m (80 °C)
- Log Koc: 0 (log Koc, Other, Experimental value)
Ecology - soil: Highly mobile in soil.

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

**Component**
- trichloroacetic acid (76-03-9): This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
  This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

**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**
- UN-No. (ADR): Not applicable
- UN-No. (IMDG): UN 1760
- UN-No. (IATA): UN 1760
- UN-No. (ADN): Not applicable
# PCA Reagent C

## Safety Data Sheet

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

### UN-No. (RID)
- Not applicable

### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | Not applicable |
| Proper Shipping Name (IMDG) | CORROSIVE LIQUID, N.O.S. |
| Proper Shipping Name (IATA) | Corrosive liquid, n.o.s. |
| Proper Shipping Name (ADN) | Not applicable |
| Proper Shipping Name (RID) | Not applicable |

| Transport document description (IMDG) | UN 1760 CORROSIVE LIQUID, N.O.S., 8, II |
| Transport document description (IATA) | UN 1760 Corrosive liquid, n.o.s., 8, II |

### 14.3. Transport hazard class(es)

#### ADR
- Transport hazard class(es) (ADR) : Not applicable

#### 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) : Not applicable

#### RID
- Transport hazard class(es) (RID) : Not applicable

### 14.4. Packing group

| Packing group (ADR) | Not applicable |
| Packing group (IMDG) | II |
| Packing group (IATA) | II |
| 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
- Special provisions (IMDG) : 274
- Packing instructions (IMDG) : P001
- IBC packing instructions (IMDG) : IBC02
- Tank instructions (IMDG) : T11
- Tank special provisions (IMDG) : TP2, TP27
- EmS-No. (Fire) : F-A
- EmS-No. (Spillage) : S-B
- Stowage category (IMDG) : B
- Stowage and handling (IMDG) : SW2
- Properties and observations (IMDG) : Causes burns to skin, eyes and mucous membranes.
PCA Reagent C
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Air transport
PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y840
PCA limited quantity max net quantity (IATA) : 0.5L
PCA packing instructions (IATA) : 851
PCA max net quantity (IATA) : 1L
CAO packing instructions (IATA) : 855
CAO max net quantity (IATA) : 30L
Special provisions (IATA) : A3, A803
ERG code (IATA) : 8L

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>H- and EUH-statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
</tr>
<tr>
<td>Skin Corr. 1A</td>
<td>Skin corrosion/irritation, Category 1A</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</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: Substance
Substance name: PCA Reagent D
EC Index-No.: 606-001-00-8
EC-No.: 200-662-2
CAS-No.: 67-64-1
Product code: 805P
Type of product: Pure substance
Formula: C3H6O
Synonyms: 2-propanone / 2-propanone / acetone / acetone NF / acetone oil / AI3-01238 / Caswell No.004 / Chevron acetone / dimethyl formaldehyde / dimethyl ketone / dimethyl ketol / Dimethylketon / DMK (=dimethyl ketone) / FEMA No 3326 / ketone propane / KTI acetone / methyl acetyl / pyroacetic acid / pyroacetic ether / pyroacetic spirit / STEC 4908105
Product group: Trade product
BIG No: 10001

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: Solvent
                     Cleansing product
                     Chemical raw material

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

United Kingdom
National Poisons Information Service (Belfast Centre) Royal Victoria Hospital
Grosvenor Road BT12 6BA Belfast
0344 892 0111

United Kingdom
National Poisons Information Service (Birmingham Centre) City Hospital
Dudley Road B18 7QH Birmingham
0344 892 0111

United Kingdom
National Poisons Information Service (Cardiff Centre) Gwennywn Ward, Llandough Hospital
Penarth CF64 2XX Cardiff
0344 892 0111

United Kingdom
National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh
Little France Crescent EH16 4SA Edinburgh
0344 892 0111

United Kingdom
Guy’s & St Thomas’ Poisons Unit Medical Toxicology Unit, Guy’s & St Thomas’ Hospital Trust
Avonley Road SE14 5ER London
+44 20 7188 7188

United Kingdom
National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit
Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle
0344 892 0111

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flammable liquids, Category 2
H225
PCA Reagent D
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Serious eye damage/eye irritation, Category 2  
H319
Specific target organ toxicity — Single exposure, Category 3, Narcosis  
H336

Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
Highly flammable liquid and vapour. May cause drowsiness or dizziness. Causes serious eye irritation.

2.2. Label elements

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

Hazard pictograms (CLP):

GHS02
GHS07

CLP Signal word:
Danger

Hazard statements (CLP):
H225 - Highly flammable liquid and vapour.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.

Precautionary statements (CLP):
P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 - Take action to prevent static discharges.
P264 - Wash hands thoroughly after handling.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P370+P378 - In case of fire: Use media other than water to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
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.

EUH-statements:
EUH066 - Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent

<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>
</table>
| PCA Reagent D | (CAS-No.) 67-64-1  
(EC-No.) 200-662-2  
(EC Index-No.) 606-001-00-8 | 100| Flam. Liq. 2, H225  
Eye Irrit. 2, H319  
STOT SE 3, H336 |

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

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. Soap may be used. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Take victim to a doctor if irritation persists.

First-aid measures after eye contact: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.


4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects: May cause drowsiness or dizziness.
Symptoms/effects after skin contact: ON CONTINUOUS EXPOSURE/CONTACT: Dry skin. Cracking of the skin.
Symptoms/effects after eye contact: Irritation of the eye tissue.

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

SECTION 5: Firefighting measures
5.1. Extinguishing media
Unsuitable extinguishing media: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture
Fire hazard: DIRECT FIRE HAZARD: Highly flammable liquid and vapour. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD: May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard: DIRECT EXPLOSION HAZARD: Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD: Heat may cause pressure rise in tanks/drums: explosion risk. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

Hazardous decomposition products in case of fire: Upon combustion: CO and CO2 are formed.

5.3. Advice for firefighters
Firefighting instructions: Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistant risk of physical explosion.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel

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 spreading in sewers.
6.3. Methods and material for containment and cleaning up

For containment:

- Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Damp up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.

Methods for cleaning up:

- Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Spill must not return in its original container. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of 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:

- Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly. Work under local exhaust/ventilation. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Keep container tightly closed.

Hygiene measures:

- Avoid prolonged and repeated contact with skin.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures:

- Ground/bond container and receiving equipment.

Storage conditions:

- Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Storage temperature:

- 15 - 20 °C

Heat and ignition sources:

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

Information on mixed storage:


Storage area:


Special rules on packaging:

- SPECIAL REQUIREMENTS: closing, with pressure relief valve. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials:

- SUITABLE MATERIAL: steel. stainless steel. carbon steel. aluminium. iron. copper. nickel. bronze. glass. MATERIAL TO AVOID: synthetic material.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

PCA Reagent D (67-64-1)

EU - Occupational Exposure Limits

- IOELV TWA (mg/m³): 1210 mg/m³
- IOELV TWA (ppm): 500 ppm

United Kingdom - Occupational Exposure Limits

- WEL TWA (mg/m³): 1210 mg/m³
- WEL TWA (ppm): 500 ppm
- WEL STEL (mg/m³): 3620 mg/m³
- WEL STEL (ppm): 1500 ppm

PCA Reagent D (67-64-1)

DNEL/DMEL (Workers)

- Acute - local effects, inhalation: 2420 mg/m³
- Long-term - systemic effects, dermal: 186 mg/kg bw/day
- Long-term - systemic effects, inhalation: 1210 mg/m³
PCA Reagent D

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

**PCA Reagent D (67-64-1)**

<table>
<thead>
<tr>
<th>DNEL/DMEL (General population)</th>
<th>Long-term - systemic effects, oral</th>
<th>62 mg/kg bw/day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term - systemic effects, inhalation</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Long-term - systemic effects, dermal</td>
<td>62 mg/kg bw/day</td>
</tr>
</tbody>
</table>

**PNEC (Water)**

- PNEC aqua (freshwater) | 10.6 mg/l  
- PNEC aqua (marine water) | 1.06 mg/l  

**PNEC (Sediment)**

- PNEC sediment (freshwater) | 30.4 mg/kg dwt  
- PNEC sediment (marine water) | 3.04 mg/kg dwt  

**PNEC (Soil)**

- PNEC soil | 29.5 mg/kg dwt  

**PNEC (STP)**

- PNEC sewage treatment plant | 100 mg/l  

**8.2. Exposure controls**

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

**Materials for protective clothing:**

GIVE GOOD RESISTANCE: butyl rubber, tetrafluoroethylene.  
GIVE LESS RESISTANCE: chlorosulfonated polyethylene, natural rubber, neoprene, polyurethane.  
PVA, styrene-butadiene rubber.  
GIVE POOR RESISTANCE: nitrile rubber, polyethylene.  
Viton, nitrile rubber/PVC

**Hand protection:**
Gloves

**Eye protection:**
Safety glasses

**Skin and body protection:**
Head/neck protection. Protective clothing

**Respiratory protection:**
Full face mask with filter type AX at conc. in air > exposure limit

**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
- Appearance: Liquid.
- Molecular mass: 58.08 g/mol
- Colour: Colourless.
- Odour threshold: No data available
- pH: 7 (10 g/l)
- Relative evaporation rate (butylacetate=1): 6
- Relative evaporation rate (ether=1): 2
- Melting point: -95 °C
- Freezing point: No data available
- Boiling point: 56 °C
- Flash point: -17 °C (Closed cup)
- Critical temperature: 235 °C
- Auto-ignition temperature: 465 °C
- Decomposition temperature: No data available
Flammability (solid, gas): Not applicable
Vapour pressure: 247 hPa (20 °C)
Vapour pressure at 50 °C: 828 hPa
Critical pressure: 47010 hPa
Relative vapour density at 20 °C: 2
Relative density: 0.79
Relative density of saturated gas/air mixture: 1.2
Density: 786 kg/m³
Water: complete
Ethanol: complete
Ether: complete
Log Pow: -0.24 (Test data)
Viscosity, kinematic: 0.417 mm²/s
Viscosity, dynamic: 0.32 mPa·s (20 °C)
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: 2 - 12.8 vol %
Lower explosive limit (LEL): 2 vol %
Upper explosive limit (UEL): 12.8 vol %

9.2. Other information
Specific conductivity: 6000000 pS/m (25 °C)
Saturation concentration: 589 g/m³
VOC content: 100 %
Other properties: Gas/vapour heavier than air at 20°C. Clear. Highly volatile. Neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Violent to explosive reaction with many compounds. Prolonged storage: on exposure to light: release of harmful gases/vapours.

10.2. Chemical stability
Unstable on exposure to light.

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

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Reacts violently with (strong) oxidizers: peroxidation resulting in increased fire or explosion risk.

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

PCA Reagent D (67-64-1)

LD50 oral rat: 5800 mg/kg (Equivalent or similar to OECD 401, Rat, Female, Experimental value, Oral)
LD50 dermal rabbit: 20000 mg/kg (Equivalent or similar to OECD 402, Rabbit, Male, Experimental value, Dermal)
LC50 inhalation rat (mg/l): 76 mg/l (Other, 4 h, Rat, Female, Experimental value, Inhalation (vapours))

Skin corrosion/irritation: Not classified
pH: 7 (10 g/l)

Serious eye damage/irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified
PCU Reagent D
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Reproductive toxicity: Not classified
STOT-single exposure: May cause drowsiness or dizziness.
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified

**PCU Reagent D (67-64-1)**

**Viscosity, kinematic:** 0.417 mm²/s

**Potential adverse human health effects and symptoms:** Odour tolerance may develop. Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Repeated exposure may cause skin dryness or cracking. Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). May cause drowsiness or dizziness. Non-toxic by inhalation (LC50 inh, rat > 50 mg/l/4h). Slightly irritant to respiratory organs. Causes serious eye irritation.

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general:** Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

**Ecology - air:** Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

**Ecology - water:** Not harmful to crustacea. Not harmful to fishes. Inhibition of activated sludge. Not harmful to algae. Not harmful to plankton.

**Acute aquatic toxicity:** Not classified

**Chronic aquatic toxicity:** Not classified

**LC50 fish 1**

5540 mg/l (EU Method C.1, 96 h, Salmo gairdneri, Static system, Fresh water, Experimental value, Nominal concentration)

**EC50 96h algae (1)**

> 7000 mg/l (Selenastrum capricornutum, Static system, Fresh water, Experimental value, Nominal concentration)

#### 12.2. Persistence and degradability

**PCU Reagent D (67-64-1)**

- **Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Readily biodegradable in water.**
- **Biochemical oxygen demand (BOD):** 1.43 g O₂/g substance
- **Chemical oxygen demand (COD):** 1.92 g O₂/g substance
- **ThOD:** 2.2 g O₂/g substance
- **BOD (% of ThOD):** 0.872 (20 day(s), Literature study)

#### 12.3. Bioaccumulative potential

**PCU Reagent D (67-64-1)**

- **BCF fish 1:** 0.69 (Pisces)
- **BCF other aquatic organisms 1:** 3 (BCFWIN, Calculated value)
- **Log Pow:** -0.24 (Test data)
- **Bioaccumulative potential:** Not bioaccumulative.

#### 12.4. Mobility in soil

**PCU Reagent D (67-64-1)**

- **Surface tension:** 0.0237 N/m
- **Ecology - soil:** No (test)data on mobility of the substance available.

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

**PCU Reagent D (67-64-1)**

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

#### 12.6. Other adverse effects

No additional information available
### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**Waste treatment methods:**
- Do not discharge into drains or the environment. 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. Recycle by distillation. Incinerate under surveillance with energy recovery.

**Product/Packaging disposal recommendations:**
- Do not discharge into drains or the environment. 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. Recycle by distillation. Incinerate under surveillance with energy recovery.

**Additional information:**

**European List of Waste (LoW) code:**
- 15 01 10* - packaging containing residues of or contaminated by dangerous substances
- 07 01 04* - other organic solvents, washing liquids and mother liquors

### 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 1090</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-No. (IMDG)</td>
<td>UN 1090</td>
</tr>
<tr>
<td>UN-No. (IATA)</td>
<td>UN 1090</td>
</tr>
<tr>
<td>UN-No. (ADN)</td>
<td>UN 1090</td>
</tr>
<tr>
<td>UN-No. (RID)</td>
<td>UN 1090</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

**Proper Shipping Name (ADR):** Acetone
**Proper Shipping Name (IMDG):** ACETONE
**Proper Shipping Name (IATA):** Acetone
**Proper Shipping Name (ADN):** Acetone
**Proper Shipping Name (RID):** Acetone

**Transport document description (ADR):** UN 1090 Acetone, 3, II, (D/E)
**Transport document description (IMDG):** UN 1090 ACETONE, 3, II (-20°C c.c.)
**Transport document description (IATA):** UN 1090 Acetone, 3, II

#### 14.3. Transport hazard class(es)

**ADR**
- **Transport hazard class(es) (ADR):** 3
- **Danger labels (ADR):** 3

**IMDG**
- **Transport hazard class(es) (IMDG):** 3
- **Danger labels (IMDG):** 3

**IATA**
- **Transport hazard class(es) (IATA):** 3
- **Hazard labels (IATA):** 3
### ADN
Transport hazard class(es) (ADN) : 3
Danger labels (ADN) : 3

### RID
Transport hazard class(es) (RID) : 3
Danger labels (RID) : 3

### 14.4. Packing group
Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

### 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) : F1
Hazard identification number (Kemler No.) : 33
Orange plates :

Tunnel restriction code (ADR) : D/E
EAC code : •2YE

#### Transport by sea
Transport regulations (IMDG) : Subject
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : E
Flash point (IMDG) : -20°C to -18°C c.c.
Properties and observations (IMDG) : Colourless, clear liquid, with a characteristic mint-like odour. Flashpoint: -20°C to -18°C c.c. Explosive limits: 2.5% to 13% Miscible with water.

#### Air transport
Transport regulations (IATA) : Subject to the provisions
PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 353
PCA Reagent D
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
ERG code (IATA) : 3H

Inland waterway transport
Classification code (ADN) : F1
Carriage permitted (ADN) : T

Rail transport
Transport regulations (RID) : Subject
Classification code (RID) : F1

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
No REACH Annex XVII restrictions
PCA Reagent D is not on the REACH Candidate List
PCA Reagent D is not on the REACH Annex XIV List

VOC content : 100 %

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>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
</tr>
<tr>
<td>Flam. Liq. 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
</tr>
<tr>
<td>H225</td>
</tr>
<tr>
<td>H319</td>
</tr>
<tr>
<td>H336</td>
</tr>
<tr>
<td>EUH066</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: PCA Reagent E
- Product code: 806P
- 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 (Int'l)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Adverse physicochemical, human health and environmental effects
Harmful if swallowed. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

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>Guanidine hydrochloride</td>
<td>(CAS-No.) 50-01-1 (EC-No.) 200-002-3 (EC Index-No.) 607-148-00-0</td>
<td>25 - 50</td>
<td>Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 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 general: Call a poison center or a doctor if you feel unwell.
- 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. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
- 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: Rinse mouth. 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 skin contact: Irritation.
- 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

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: 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
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. Avoid contact with skin and eyes.

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
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: 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 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
No additional information available

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
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
Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
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
12.2. Persistence and degradability
Guanidine hydrochloride (50-01-1)
Persistence and degradability
Not readily biodegradable in water.

12.3. Bioaccumulative potential
Guanidine hydrochloride (50-01-1)
Log Pow
-1.7
Bioaccumulative potential
Not bioaccumulative.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods
: Waste treatment methods.

SECTION 14: Transport information

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

14.1. UN number
UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

ADN
Transport hazard class(es) (ADN) : Not applicable

RID
Transport hazard class(es) (RID) : Not applicable

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>Acute Tox. 4 (Oral)</th>
<th>Acute toxicity (oral), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irr. 2</td>
<td>Serious eye damage/eye irritation, Category 2</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>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.
PCA Reagent F
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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

1.1. Product identifier

Product form: Substance
Substance name: PCA Reagent F
EC-No.: 242-646-8
CAS-No.: 18883-66-4
Product code: 807P
Type of product: Pure substance
Formula: C₈H₁₅N₃O₇
Synonyms:
- (D)-glucopyranose, 2-deoxy-2-(((methylnitrosoamino)carbonyl)amino)- / (D)-glucose, 2-deoxy-2-((3-methyl-3-nitrosoureido)- / (D)-glucose, 2-deoxy-2-(((methylnitrosoamino)carbonyl)amino)- / 2-deoxy-2-(((methylnitrosoamino)carbonyl)amino)- (D)-glucopyranose / 2-deoxy-2-(3-methyl-3-nitrosoureido)-(D)-glucopyranosyl / 2-deoxy-2-(3-methyl-3-nitrosoureido)-alpha(and beta)-(D)-glucopyranose / glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido), (D)- / N-(D)-Glucosyl-(2)-N'-nitrosomethylurea / N-(methylnitrosocarbamoyl)-alpha-(D)-glucosamine / NSC-85598 / NSC-85998 / STR (=streptozocin) / streptozocin / streptozotocin / STRZ (=streptozocin) / STZ (=streptozocin) / U-9889 / ZANOSAR

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: Antibiotic
Pharmaceutical product: active ingredient

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</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service (Belfast Centre)</td>
<td>Royal Victoria Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>National Poisons Information Service</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service (Birmingham Centre) City</td>
<td>City Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service (Cardiff Centre)</td>
<td>Gwemwyn Ward, Llandough Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>National Poisons Information Service</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service Edinburgh Royal Infirmary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>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,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guy's &amp; St Thomas' Hospital Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service (Newcastle Centre) Regional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drugs and Therapeutics Centre, Wolfson</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PCA Reagent F
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Carcinogenicity, Category 1B  H350
Germ cell mutagenicity, Category 1B  H340
Reproductive toxicity, Category 1B  H360D

Adverse physicochemical, human health and environmental effects
Suspected of causing cancer. May cause genetic defects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP):
GHS08

CLP Signal word : Danger
Hazard statements (CLP):
H350 - May cause cancer.
H340 - May cause genetic defects.
H360D - May damage the unborn child.

Precautionary statements (CLP):
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves, protective clothing.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
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
Substance type : Mono-constituent

<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>PCA Reagent F</td>
<td>(CAS-No.) 18883-86-4 (EC-No.) 242-646-8</td>
<td>100</td>
<td>Carc. 1B, H350 Muta. 1B, H340 Repr. 1B, H360D</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

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:
Rinse with water. Soap may be used. Remove clothing before washing.

First-aid measures after eye contact:
Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion:
Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.
4.2. Most important symptoms and effects, both acute and delayed

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

SECTION 5: Firefighting measures
5.1. Extinguishing media
5.2. Special hazards arising from the substance or mixture
Explosion hazard: INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".
Hazardous decomposition products in case of fire: On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

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: Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.
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: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
Methods for cleaning up: Prevent dust cloud formation. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. 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: Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.
Hygiene measures: Observe strict hygiene.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store locked up. Store in a well-ventilated place. Keep cool.
Storage temperature: < 4 °C
Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. water/moisture.
Storage area: Store in a cool area. Store in a dry area. Store in a dark area. Keep locked up. Unauthorized persons are not admitted. Provide for a cooling system. May be stored under argon. Meet the legal requirements.
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 GOOD RESISTANCE: rubber

Hand protection:
Gloves

Eye protection:
Safety glasses. In case of dust production: protective goggles

Skin and body protection:
Protective clothing

Respiratory protection:
Dust formation: dust mask. High dust production: self-contained breathing apparatus

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 : Solid
Molecular mass : 265.23 g/mol
Colour : White to yellow.
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : 115 °C
Freezing point : Not applicable
Boiling point : Not applicable
Flash point : Not applicable
Auto-ignition temperature : Not applicable
Decomposition temperature : 115 °C
Flammability (solid, gas) : Non flammable.
Vapour pressure : < 0.1 hPa (20 °C)
Relative vapour density at 20 °C : Not applicable
Relative density : No data available
Solubility : Poorly soluble in water. Soluble in ethanol. Soluble in methanol.
Water: 0.5 g/100ml
Log Pow : -1.45
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : Not applicable

9.2. Other information

VOC content : 0 %
Other properties : Hygroscopic.
SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts exothermically with (some) bases: release of explosive compounds.

10.2. Chemical stability
Hygroscopic.

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
Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : May cause genetic defects.
Carcinogenicity : May cause cancer.

PCA Reagent F (18883-66-4)

IARC group 2B - Possibly carcinogenic to humans

Reproductive toxicity : May damage the unborn child.
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Severe water pollutant (surface water). No data available on ecotoxicity.
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability
PCA Reagent F (18883-66-4)

Persistence and degradability Biodegradability in water: no data available.

12.3. Bioaccumulative potential
PCA Reagent F (18883-66-4)

Log Pow -1.45
Bioaccumulative potential Not bioaccumulative.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

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 to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent.

Additional information:

European List of Waste (LoW) code:
15 01 10* - packaging containing residues of or contaminated by dangerous substances
07 05 13* - solid wastes containing dangerous substances

SECTION 14: Transport information
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : UN 3249
UN-No. (IMDG) : UN 3249
UN-No. (IATA) : UN 3249
UN-No. (ADN) : UN 3249
UN-No. (RID) : UN 3249

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Medicine, solid, toxic, n.o.s.
Proper Shipping Name (IMDG) : medicine, solid, toxic, n.o.s.
Proper Shipping Name (IATA) : Medicine, solid, toxic, n.o.s.
Proper Shipping Name (ADN) : Medicine, solid, toxic, n.o.s.
Proper Shipping Name (RID) : Medicine, solid, toxic, n.o.s.

Transport document description (ADR) : UN 3249 Medicine, solid, toxic, n.o.s., 6.1, III, (E)
Transport document description (IMDG) : UN 3249 medicine, solid, toxic, n.o.s., 6.1, III
Transport document description (IATA) : UN 3249 Medicine, solid, toxic, n.o.s., 6.1, III
Transport document description (ADN) : UN 3249 Medicine, solid, toxic, n.o.s., 6.1, III
Transport document description (RID) : UN 3249 Medicine, solid, toxic, n.o.s., 6.1, III

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : 6.1
Danger labels (ADR) : 6.1

IMDG
Transport hazard class(es) (IMDG) : 6.1
Danger labels (IMDG) : 6.1

IATA
Transport hazard class(es) (IATA) : 6.1
Hazard labels (IATA) : 6.1

ADN
Transport hazard class(es) (ADN) : 6.1
Danger labels (ADN): 6.1

RID
Transport hazard class(es) (RID): 6.1
Danger labels (RID): 6.1

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): T2
Hazard identification number (Kemler No.): 60
Orange plates: 60
Tunnel restriction code (ADR): E
EAC code: 2X

Transport by sea
Transport regulations (IMDG): Subject
EmS-No. (Fire): F-A
EmS-No. (Spillage): S-A

Air transport
Transport regulations (IATA): Subject to the provisions

Inland waterway transport
Classification code (ADN): T2

Rail transport
Transport regulations (RID): Subject
Classification code (RID): T2

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
No REACH Annex XVII restrictions
PCA Reagent F is not on the REACH Candidate List
PCA Reagent F is not on the REACH Annex XIV List
PCA Reagent F is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.
PCA Reagent F
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830


VOC content : 0 %

15.1.2. National regulations
Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Not 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>
</tr>
</thead>
<tbody>
<tr>
<td>Carc. 1B</td>
</tr>
<tr>
<td>Mut. 1B</td>
</tr>
<tr>
<td>Repr. 1B</td>
</tr>
<tr>
<td>H340</td>
</tr>
<tr>
<td>H350</td>
</tr>
<tr>
<td>H360D</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.