SAFETY DATA SHEET

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

1.1 Product identifiers

Product name: Adenine
Product Number: A8626
Brand: Sigma
CAS-No.: 73-24-5

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

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Short-term (acute) aquatic hazard (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard statement(s)
H301 Toxic if swallowed.
H401 Toxic to aquatic life.
Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenine</td>
<td>Acute Tox. 3; Aquatic Acute 2; H301, H401</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.
4.2 **Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 **Indication of any immediate medical attention and special treatment needed**
No data available

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**SECTION 5: Firefighting measures**

5.1 **Extinguishing media**

- **Suitable extinguishing media**
  - Water
  - Foam
  - Carbon dioxide (CO2)
  - Dry powder

- **Unsuitable extinguishing media**
  - For this substance/mixture no limitations of extinguishing agents are given.

5.2 **Special hazards arising from the substance or mixture**

- Carbon oxides
- Nitrogen oxides (NOx)
- Combustible.
  - Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 **Advice for firefighters**

- Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 **Further information**

- Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures**

6.1 **Personal precautions, protective equipment and emergency procedures**

- Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
- For personal protection see section 8.

6.2 **Environmental precautions**

- Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**

- Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 **Reference to other sections**

- For disposal see section 13.

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**SECTION 7: Handling and storage**

7.1 **Precautions for safe handling**

- For precautions see section 2.2.
7.2 **Conditions for safe storage, including any incompatibilities**

**Storage conditions**
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

**Storage class**
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**SECTION 8: Exposure controls/personal protection**

8.1 **Control parameters**

**Ingredients with workplace control parameters**
Contains no substances with occupational exposure limit values.

8.2 **Exposure controls**

**Appropriate engineering controls**
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

*Full contact*
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

*This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).*

*Splash contact*
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

*Body Protection*
protective clothing
**Respiratory protection**
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains.

### 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>
</table>
| **a)** Appearance | Form: powder  
Color: light yellow |
| **b)** Odor | No data available |
| **c)** Odor Threshold | No data available |
| **d)** pH | No data available |
| **e)** Melting point/freezing point | Melting point/range: > 360 °C (> 680 °F) |
| **f)** Initial boiling point and boiling range | No data available |
| **g)** Flash point | No data available |
| **h)** Evaporation rate | No data available |
| **i)** Flammability (solid, gas) | No data available |
| **j)** Upper/lower flammability or explosive limits | No data available |
| **k)** Vapor pressure | No data available |
| **l)** Vapor density | No data available |
| **m)** Density | 1.49 g/cm³ at 20 °C (68 °F) - OECD Test Guideline 109  
Relative density | 1.4920 °C - OECD Test Guideline 109 |
| **n)** Water solubility | 667.2 g/l at 20 °C (68 °F) - OECD Test Guideline 105 |
| **o)** Partition coefficient: n-octanol/water | log Pow: -0.1 at 20 °C (68 °F) - Bioaccumulation is not expected. |
| **p)** Autoignition temperature | does not ignite |
| **q)** Decomposition temperature | No data available |
| **r)** Viscosity | No data available |
| **s)** Explosive properties | No data available |
| **t)** Oxidizing properties | none |
9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid
No information available

10.5 Incompatible materials
No information available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 227 mg/kg
Remarks: Behavioral: Convulsions or effect on seizure threshold.
Behavioral: Muscle weakness.
Lungs, Thorax, or Respiration: Other changes.
(RTECS)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation
(OECD Test Guideline 439)

Serious eye damage/eye irritation
Eyes - Human
Result: No eye irritation - 6 h
(OECD Test Guideline 492)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

**Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**11.2 Additional Information**
Repeated dose toxicity - Rat - male - Oral - 36 d - LOAEL (Lowest observed adverse effect level) - 35 mg/kg

RTECS: AU6125000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### SECTION 12: Ecological information

#### 12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates

semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h

(OECD Test Guideline 202)

Toxicity to algae

static test ErC50 - Pseudokirchneriella subcapitata - 4.33 mg/l - 72 h

(OECD Test Guideline 201)

#### 12.2 Persistence and degradability

Biodegradability

aerobic - Exposure time 28 d

Result: 99 % - Readily biodegradable.

(OECD Test Guideline 301F)

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available
12.5 **Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 **Endocrine disrupting properties**

No data available

12.7 **Other adverse effects**

No data available

### SECTION 13: Disposal considerations

13.1 **Waste treatment methods**

**Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

### SECTION 14: Transport information

**DOT (US)**

- **UN number**: 2811
- **Class**: 6.1
- **Packing group**: III
- **Reportable Quantity (RQ)**: Poison Inhalation Hazard: No

**IMDG**

- **UN number**: 2811
- **Class**: 6.1
- **Packing group**: III
- **EM- No**: F-A, S-A
- **Proper shipping name**: TOXIC SOLID, ORGANIC, N.O.S. (Adenine)

**IATA**

- **UN number**: 2811
- **Class**: 6.1
- **Packing group**: III
- **Proper shipping name**: Toxic solid, organic, n.o.s. (Adenine)

### SECTION 15: Regulatory information

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.
SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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