

ALFAAA13056

## 6-Aminopenicillanic acid

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

|                                         |                                                                                                                                                                                                                        |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 产品说明:<br>Product Description:           | 6-氨基青霉烷酸<br>6-Aminopenicillanic acid                                                                                                                                                                                   |
| Cat No. :                               | A13056                                                                                                                                                                                                                 |
| Synonyms                                | 6-APA; 6-Amino-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid                                                                                                                                  |
| CAS No                                  | 551-16-6                                                                                                                                                                                                               |
| Molecular Formula                       | C <sub>8</sub> H <sub>12</sub> N <sub>2</sub> O <sub>3</sub> S                                                                                                                                                         |
| Supplier                                | Alfa Aesar<br>Avocado Research Chemicals, Ltd.<br>Shore Road<br>Port of Heysham Industrial Park<br>Heysham, Lancashire LA3 2XY<br>United Kingdom<br>Office Tel: +44 (0) 1524 850506<br>Office Fax: +44 (0) 1524 850608 |
| Emergency Telephone Number              | Call Carechem 24 at<br>+44 (0) 1865 407333 (English only);<br>+44 (0) 1235 239670 (Multi-language)                                                                                                                     |
| E-mail address                          | uktech@alfa.com<br>www.alfa.com<br>Product Safety Department                                                                                                                                                           |
| Recommended Use<br>Uses advised against | Laboratory chemicals.<br>No Information available                                                                                                                                                                      |

### SECTION 2. HAZARD IDENTIFICATION

|                                                                                                                                              |                           |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------|
| Physical State<br>Powder Solid                                                                                                               | Appearance<br>Light cream | Odor<br>Odorless |
| <b>Emergency Overview</b><br>May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. |                           |                  |

#### Classification of the substance or mixture

|                           |            |
|---------------------------|------------|
| Respiratory Sensitization | Category 1 |
| Skin Sensitization        | Category 1 |

#### Label Elements



## 6-Aminopenicillanic acid

## Signal Word

Danger

## Hazard Statements

H317 - May cause an allergic skin reaction

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

## Precautionary Statements

## Prevention

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P272 - Contaminated work clothing should not be allowed out of the workplace

P280 - Wear protective gloves

P285 - In case of inadequate ventilation wear respiratory protection

## Response

P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P363 - Wash contaminated clothing before reuse

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P330 - Rinse mouth

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

## Storage

P403 - Store in a well-ventilated place

## Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Physical and Chemical Hazards

None identified.

## Health Hazards

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

## Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component                 | CAS No   | Weight % |
|---------------------------|----------|----------|
| 6-Amino-penicillanic acid | 551-16-6 | 96       |

## SECTION 4. FIRST AID MEASURES

## Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

## Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

## Inhalation

Remove from exposure, lie down. Remove to fresh air. Get medical attention.

## Ingestion

Clean mouth with water. Get medical attention.

## Most important symptoms and effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

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**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation.

**Environmental Precautions**

See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Avoid contact with skin and eyes. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance.

**Storage**

Keep in a dry place. Keep container tightly closed. Keep refrigerated.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters****Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

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## Exposure Controls

## Engineering Measures

Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

## Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | -               | EN 374      | (minimum requirement) |
| Butyl rubber   | recommendations   |                 |             |                       |
| Nitrile rubber |                   |                 |             |                       |
| Neoprene       |                   |                 |             |                       |
| PVC            |                   |                 |             |                       |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particulates filter conforming to EN 143

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141  
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                            |                                 |                                          |
|----------------------------|---------------------------------|------------------------------------------|
| <b>Appearance</b>          | Light cream                     |                                          |
| <b>Physical State</b>      | Powder Solid                    |                                          |
| <b>Odor</b>                | Odorless                        |                                          |
| <b>Odor Threshold</b>      | No data available               |                                          |
| <b>pH</b>                  | No information available        |                                          |
| <b>Melting Point/Range</b> | 197 - 203 °C / 386.6 - 397.4 °F |                                          |
| <b>Softening Point</b>     | No data available               |                                          |
| <b>Boiling Point/Range</b> | No information available        |                                          |
| <b>Flash Point</b>         | No information available        | <b>Method -</b> No information available |

## 6-Aminopenicillanic acid

|                                         |                          |       |
|-----------------------------------------|--------------------------|-------|
| Evaporation Rate                        | Not applicable           | Solid |
| Flammability (solid,gas)                | No information available |       |
| Explosion Limits                        | No data available        |       |
| Vapor Pressure                          | No information available |       |
| Vapor Density                           | Not applicable           | Solid |
| Specific Gravity / Density              | No data available        |       |
| Bulk Density                            | No data available        |       |
| Water Solubility                        | No information available |       |
| Solubility in other solvents            | No information available |       |
| Partition Coefficient (n-octanol/water) |                          |       |
| Component                               | log Pow                  |       |
| 6-Amino-penicillanic acid               | -3.87                    |       |
| Autoignition Temperature                | No data available        |       |
| Decomposition Temperature               | No data available        |       |
| Viscosity                               | Not applicable           | Solid |
| Explosive Properties                    | No information available |       |
| Oxidizing Properties                    | No information available |       |
| Molecular Formula                       | C8 H12 N2 O3 S           |       |
| Molecular Weight                        | 216.25                   |       |

## SECTION 10. STABILITY AND REACTIVITY

|                          |                                 |
|--------------------------|---------------------------------|
| Stability                | Stable under normal conditions. |
| Hazardous Reactions      | No information available.       |
| Hazardous Polymerization | No information available.       |
| Conditions to Avoid      | Incompatible products.          |
| Materials to avoid       | Strong oxidizing agents.        |

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11. TOXICOLOGICAL INFORMATION

Product Information No acute toxicity information is available for this product

## (a) acute toxicity;

| Component                 | LD50 Oral                 | LD50 Dermal | LC50 Inhalation |
|---------------------------|---------------------------|-------------|-----------------|
| 6-Amino-penicillanic acid | LD50 > 2000 mg/kg ( Rat ) |             |                 |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

## (d) respiratory or skin sensitization;

Respiratory Category 1  
Skin Category 1

May cause sensitization by skin contact

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

**SAFETY DATA SHEET**  
**6-Aminopenicillanic acid**

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Not applicable  
Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**SECTION 12. ECOLOGICAL INFORMATION**

Ecotoxicity effects Do not empty into drains. .

| Component                 | Freshwater Fish                                               | Water Flea | Freshwater Algae | Microtox |
|---------------------------|---------------------------------------------------------------|------------|------------------|----------|
| 6-Amino-penicillanic acid | LC50: > 100 mg/L, 96h<br>semi-static<br>(Oncorhynchus mykiss) |            |                  |          |

Persistence and Degradability No information available

Bioaccumulative Potential No information available

| Component                 | log Pow | Bioconcentration factor (BCF) |
|---------------------------|---------|-------------------------------|
| 6-Amino-penicillanic acid | -3.87   | No data available             |

Mobility in soil No information available

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Other Information Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

**SECTION 14. TRANSPORT INFORMATION**

**Road and Rail Transport** Not Regulated**IMDG/IMO** Not regulated**IATA** Not regulated**Special Precautions for User** No special precautions required**SECTION 15. REGULATORY INFORMATION****International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component                 | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL     |
|---------------------------|-----------------------------------------------------|-----------------------------------------|------|-------|-----------|------|-----|-------|------|------|------|----------|
| 6-Amino-penicillanic acid | -                                                   | -                                       | X    | X     | 208-993-4 | X    | X   | X     | X    | X    | -    | KE-01319 |

**National Regulations****SECTION 16. OTHER INFORMATION**

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 04-Feb-2021  
**Revision Summary** Not applicable.

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Legend****CAS** - Chemical Abstracts Service**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**WEL** - Workplace Exposure Limit**ACGIH** - American Conference of Governmental Industrial Hygienists**DNEL** - Derived No Effect Level**RPE** - Respiratory Protective Equipment**TWA** - Time Weighted Average**IARC** - International Agency for Research on Cancer  
Predicted No Effect Concentration (PNEC)**LD50** - Lethal Dose 50%

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**LC50** - Lethal Concentration 50%**NOEC** - No Observed Effect Concentration**PBT** - Persistent, Bioaccumulative, Toxic**EC50** - Effective Concentration 50%**POW** - Partition coefficient Octanol:Water**vPvB** - very Persistent, very Bioaccumulative**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code**OECD** - Organisation for Economic Co-operation and Development**BCF** - Bioconcentration factor**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association**MARPOL** - International Convention for the Prevention of Pollution from Ships**ATE** - Acute Toxicity Estimate**VOC** (volatile organic compound)**Key literature references and sources for data**<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

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**End of Safety Data Sheet**