

# Alendronic Acid SDS/MSDS (Safety Data Sheet)

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

\* Product Name: Alendronic Acid

\* Catalog Number: S5536

\* CAS Number: 66376-36-1

\* IUPAC Name: Phosphonic acid, P,P'-(4-amino-1-hydroxybutylidene)bis-

Relevant identified uses and uses advised against

\* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.

\* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

\* Company: Selleck Chemicals

\* TollFree: +1 877 796-6397

\* Tel: +1 832 582-8158

\* Fax: +1 832 582-8590

Emergency telephone number

\* Emergency phone #: +1 832 582-8158

## 2. HAZARDS IDENTIFICATION

### 2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Corrosive to metals: Category 1. H290

Acute toxicity (oral): Category 4. H302

Skin corrosion: Category 1. H314

Skin irritation: Category 2. H315

Serious eye damage: Category 1. H318

Serious eye irritation: Category 2. H319

Specific target organ toxicity (single exposure): Category 3. H335

Reproductive toxicity: Category 2. H361

Specific target organ toxicity (single exposure): Category 2. H371

### 2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Danger

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard statement(s)</b>        | <p>H290: May be corrosive to metals</p> <p>H302: Harmful if swallowed</p> <p>H314: Causes severe skin burns and eye damage</p> <p>H315: Causes skin irritation</p> <p>H318: Causes serious eye damage</p> <p>H319: Causes serious eye irritation</p> <p>H335: May cause respiratory irritation</p> <p>H361: Suspected of damaging fertility or the unborn child</p> <p>H371: May cause damage to organs</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Precautionary statement(s)</b> | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Prevention</b>                 | <p>P203: Obtain, read and follow all safety instructions before use.</p> <p>P234: Keep only in original container.</p> <p>P260: Do not breathe dust/fume/gas/mist/vapors/spray.</p> <p>P261: Avoid breathing dust/fume/gas/mist/vapors/spray.</p> <p>P264: Wash hands thoroughly after handling.</p> <p>P264+P265: Wash hands thoroughly after handling. Do not touch eyes.</p> <p>P270: Do not eat, drink or smoke when using this product.</p> <p>P271: Use only outdoors or in a well-ventilated area.</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Response</b>                   | <p>P301+P317: IF SWALLOWED: Get medical help.</p> <p>P301+P330: IF SWALLOWED: Rinse mouth.</p> <p>P302+P352: IF ON SKIN: wash with plenty of water.</p> <p>P302+P361: IF ON SKIN: Take off immediately all contaminated clothing.</p> <p>P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351: IF IN EYES: Rinse cautiously with water for several minutes.</p> <p>P305+P354: IF IN EYES: Immediately rinse with water for several minutes.</p> <p>P308+P316: IF exposed or concerned: Get emergency medical help immediately.</p> <p>P316: Get emergency medical help immediately.</p> <p>P317: Get emergency medical help.</p> <p>P318: if exposed or concerned, get medical advice.</p> <p>P319: Get medical help if you feel unwell.</p> <p>P321: Specific treatment (see information on this label and safety datasheet)).</p> <p>P330: Rinse mouth.</p> <p>P331: Do NOT induce vomiting.</p> <p>P332+P317: If skin irritation occurs: Get medical help.</p> <p>P337+P317: If eye irritation persists: Get medical help.</p> <p>P338: Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P354: Immediately rinse with water for several minutes.</p> <p>P362+P364: Take off contaminated clothing and wash it before reuse.</p> <p>P363: Wash contaminated clothing before reuse.</p> <p>P390: Absorb spillage to prevent material damage.</p> |
| <b>Storage</b>                    | <p>P403+P233: Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405: Store locked up.</p> <p>P406: Store in corrosive resistant container with a resistant inner liner.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Disposal</b>                   | P501: P501 Dispose of contents/ container to an approved waste disposal plant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## **2.3 Other hazards**

None.

## **3. COMPOSITION/INFORMATION ON INGREDIENTS**

### **3.1 Substances**

Product name: Alendronic Acid

CAS Number: 66376-36-1

PubChem CID: 2088

Molecular formula: C<sub>4</sub>H<sub>13</sub>NO<sub>7</sub>P<sub>2</sub>

Molecular weight: 249.10 g/mol

IUPAC name: (4-amino-1-hydroxy-1-phosphonobutyl)phosphonic acid

### **3.2 Mixtures**

Not applicable (pure substance).

## **4. FIRST-AID MEASURES**

### **4.1 Description of first aid measures**

Inhalation: Move to fresh air. Keep at rest in a position comfortable for breathing. Seek medical attention if symptoms persist.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation develops.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

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

See Section 11 (Toxicological Information).

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

Treat symptomatically. Contact a poison control center or physician for severe exposure.

## **5. FIRE-FIGHTING MEASURES**

### **5.1 Extinguishing media**

Suitable: Water spray, dry chemical, carbon dioxide (CO<sub>2</sub>), alcohol-resistant foam.

Unsuitable: None known.

### **5.2 Specific hazards arising from the substance or mixture**

Combustible. Heating may produce toxic fumes.

### **5.3 Advice for firefighters**

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

## **6. ACCIDENTAL RELEASE MEASURES**

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

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

### **6.2 Environmental precautions**

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

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

SRP: At the time of review, regulatory criteria for small quantity disposal are subject to significant revision, however, household quantities of waste pharmaceuticals may be managed as follows: Mix with wet cat litter or coffee grounds, double bag in plastic, discard in trash.

SRP: Expired or waste pharmaceuticals shall carefully take into consideration applicable DEA, EPA, and FDA regulations. It is not appropriate to dispose by flushing the pharmaceutical down the toilet or discarding to trash. If possible return the pharmaceutical to the manufacturer for proper disposal being careful to properly label and securely package the material. Alternatively, the waste pharmaceutical shall be labeled, securely packaged and transported by a state licensed medical waste contractor to dispose by burial in a licensed hazardous or toxic waste landfill or incinerator.

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

Store at 20 to 25 °C (68 to 77 °F); excursions permitted to 15 to 30 °C (59 to 86 °F).

### **7.2 Conditions for safe storage, including any incompatibilities**

Store at 20 to 25 °C (68 to 77 °F); excursions permitted to 15 to 30 °C (59 to 86 °F).

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Exposure controls**

#### **8.1.1 Occupational exposure limits (OEL)**

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

#### **8.1.2 Appropriate engineering controls**

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

## 8.2 Individual protection measures

### 8.2.1 Eye/face protection

Wear chemical safety goggles and face shield.

### 8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

### 8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

### 8.2.4 Thermal hazards

Not applicable.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance: Solid
- b) Odor: No data available
- c) Odor threshold: No data available
- d) pH: No data available
- e) Melting point/freezing point: 233-235 °C (decomposes)
- 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) Relative density: No data available
- n) Water solubility: Soluble in DMSO; slightly soluble in water
- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): -6.5
- p) Auto-ignition temperature: No data available
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

### 9.2 Other information

Topological Polar Surface Area (TPSA): 161 Å<sup>2</sup>

Complexity: 257

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### **10.3 Possibility of hazardous reactions**

No hazardous reactions under normal conditions.

### **10.4 Conditions to avoid**

Avoid heat, sparks, open flames, direct sunlight, and moisture.

Avoid strong oxidizing agents, strong acids, and strong bases.

### **10.5 Incompatible materials**

Strong oxidizing agents, strong acids, strong bases.

### **10.6 Hazardous decomposition products**

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Phosphorus oxides (P<sub>2</sub>O<sub>5</sub>).

See also Section 5 (Fire-fighting measures) for combustion products.

## **11. TOXICOLOGICAL INFORMATION**

### **11.1 Information on toxicological effects**

#### **Acute toxicity:**

No acute toxicity data available.

#### **Skin corrosion/irritation:**

Causes severe skin burns and eye damage (H314).

#### **Serious eye damage/eye irritation:**

Causes serious eye damage (H318).

#### **Respiratory or skin sensitization:**

No data available.

#### **Germ cell mutagenicity:**

No data available.

#### **Carcinogenicity:**

No data available.

#### **Reproductive toxicity:**

Suspected of damaging fertility or the unborn child (H361).

#### **Specific target organ toxicity (single exposure):**

H371

#### **Specific target organ toxicity (repeated exposure):**

No data available.

#### **Aspiration hazard:**

No data available.

### **11.2 Additional information**

#### **Carcinogen classification:**

No indication of carcinogenicity to humans (not listed by IARC).

#### **Exposure routes:**

Relative to an intravenous (IV) reference dose, the mean oral bioavailability of alendronate in women was 0.7% for doses ranging from 5 to 40 mg when administered after an overnight fast and two hours before a standardized breakfast. Oral bioavailability of the 10 mg tablet in men (0.59%) was similar to that in women (0.78%) when administered after an overnight fast and 2 hours before breakfast.

**Signs and symptoms of exposure:**

Alendronate can damage the esophagus both by toxicity from the medication itself and by nonspecific irritation secondary to contact between the pill and the esophageal mucosa, similar to other cases of "pill esophagitis."

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

Alendronic acid's production and use as a pharmaceutical may result in its release to the environment through various waste streams. If released to air, an estimated vapor pressure of  $4.9 \times 10^{-13}$  mm Hg at 25 °C indicates alendronic acid will exist solely in the particulate phase in the atmosphere. Particulate-phase alendronic acid will be removed from the atmosphere by wet or dry deposition. Alendronic acid does not contain chromophores that absorb at wavelengths >290 nm, and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, alendronic acid is expected to have very high mobility based upon an estimated Koc of 10. The pKa values of alendronic acid are pKa1 2.72, pKa2 8.73, pKa3 10.5 and pKa4 11.6, indicating that this compound will exist almost entirely in the anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts. Volatilization from moist soil is not expected because the compound exists as an anion and anions do not volatilize. Alendronic acid may not volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation data were not available. If released into water, alendronic acid is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. The pKa values indicate alendronic acid will exist almost entirely in the anion form at pH values of 5 to 9 and therefore volatilization from water surf

### **12.2 Persistence and degradability**

No data available.

### **12.3 Bioaccumulative potential**

Log P (n-octanol/water): -6.5

Low potential for bioaccumulation (Log P < 3).

### **12.4 Mobility in soil**

No data available.

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

PBT/vPvB assessment not available.

### **12.6 Other adverse effects**

No other adverse ecological effects identified.

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste treatment methods**

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same

manner as the product itself.

## **14. TRANSPORT INFORMATION**

### **14.1 UN number**

Not regulated as dangerous goods (research quantities typically exempt).

### **14.2 UN proper shipping name**

Not subject to transport regulations (small quantities for research use).

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

Not classified as dangerous goods for transport (research quantities).

### **14.4 Packing group**

Not applicable (not regulated as dangerous goods in typical research quantities).

### **14.5 Environmental hazards**

Marine pollutant: No (not classified as environmentally hazardous per GHS).

### **14.6 Special precautions for user**

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

### **14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

## **15. REGULATORY INFORMATION**

### **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

US EPA / TSCA: Not available in public databases.

EU ECHA / REACH: Not available in public databases.

#### **SARA 302 Components:**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### **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 (short-term) health hazard

Chronic (long-term) health hazard

#### **Massachusetts Right To Know Components:**

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

#### **Pennsylvania Right To Know Components:**

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

#### **New Jersey Right To Know Components:**

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

**California Prop. 65 Components:**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

**15.2 Chemical safety assessment**

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

**16. OTHER INFORMATION**

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.