

## Ampicillin Formulation

Version            Revision Date:            SDS Number:            Date of last issue: 04/09/2022  
1.3                10/01/2022              10082465-00004        Date of first issue: 10/27/2021

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### SECTION 1. IDENTIFICATION

Product name                    : Ampicillin Formulation  
Other means of identification   : No data available

#### Manufacturer or supplier's details

Company name of supplier     : Merck & Co., Inc  
Address                         : 126 E. Lincoln Avenue  
                                      : Rahway, New Jersey U.S.A. 07065  
Telephone                       : 908-740-4000  
Emergency telephone         : 1-908-423-6000  
E-mail address                 : EHSDATASTEWARD@merck.com

#### Recommended use of the chemical and restrictions on use

Recommended use               : Veterinary product  
Restrictions on use             : Not applicable

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the Hazardous Products Regulations

Respiratory sensitization     : Category 1

#### GHS label elements

Hazard pictograms             :



Signal Word                    : Danger

Hazard Statements             : H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statements    : **Prevention:**  
P261 Avoid breathing mist or vapors.  
P284 Wear respiratory protection.  
**Response:**  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P342 + P311 If experiencing respiratory symptoms: Call a doctor.  
**Disposal:**  
P501 Dispose of contents and container to an approved waste disposal plant.

#### Other hazards

None known.

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

| Chemical name | Common Name/Synonym   | CAS-No. | Concentration (% w/w) |
|---------------|---|---------|-----------------------|
| Ampicillin    | 6-[(Aminophenylacetyl)amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid | 69-53-4 | 10.3                  |

### SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
 If not breathing, give artificial respiration.  
 If breathing is difficult, give oxygen.  
 Get medical attention.
- In case of skin contact : Wash with water and soap as a precaution.  
 Get medical attention if symptoms occur.
- In case of eye contact : Flush eyes with water as a precaution.  
 Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
 Get medical attention if symptoms occur.  
 Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- Notes to physician : Treat symptomatically and supportively.

### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
 Alcohol-resistant foam  
 Carbon dioxide (CO<sub>2</sub>)  
 Dry chemical
- Unsuitable extinguishing media : None known.

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- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Nitrogen oxides (NO<sub>x</sub>)  
Carbon oxides  
Sulfur oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.
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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g., by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
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**SECTION 7. HANDLING AND STORAGE**

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Avoid breathing mist or vapors.  
Do not swallow.  
Avoid contact with eyes.  
Avoid prolonged or repeated contact with skin.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure

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- assessment  
 Keep container tightly closed.  
 Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers.  
 Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.  
 Keep tightly closed.  
 Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:  
 Strong oxidizing agents  
 Gases

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

| Components                | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis    |
|---------------------------|---------|-------------------------------|--|----------|
| Ampicillin                | 69-53-4 | TWA                           | 0.6 mg/m <sup>3</sup> (OEB 2)                  | Internal |
| Further information: RSEN |         |                               |  |          |

- Engineering measures** : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
 All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
 Laboratory operations do not require special containment.

## Personal protective equipment

- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- Filter type : Combined particulates and organic vapor type
- Hand protection : Chemical-resistant gloves
- Eye protection : Wear safety glasses with side shields or goggles.  
 If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.  
 Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
- Skin and body protection : Work uniform or laboratory coat.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
 When using do not eat, drink or smoke.  
 Wash contaminated clothing before re-use.

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The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|  |   |                    |
|--|---|--------------------|
| Appearance                                       | : | suspension         |
| Color  | : | white to off-white |
| Odor   | : | No data available  |
| Odor Threshold                                   | : | No data available  |
| pH   | : | No data available  |
| Melting point/freezing point                     | : | No data available  |
| Initial boiling point and boiling range          | : | No data available  |
| Flash point                                      | : | No data available  |
| Evaporation rate                                 | : | No data available  |
| Flammability (solid, gas)                        | : | Not applicable     |
| Flammability (liquids)                           | : | No data available  |
| Upper explosion limit / Upper flammability limit | : | No data available  |
| Lower explosion limit / Lower flammability limit | : | No data available  |
| Vapor pressure                                   | : | No data available  |
| Relative vapor density                           | : | No data available  |
| Relative density                                 | : | No data available  |
| Density  | : | No data available  |
| Solubility(ies)                                  |   |                    |
| Water solubility                                 | : | No data available  |
| Partition coefficient: n-octanol/water           | : | Not applicable     |
| Autoignition temperature                         | : | No data available  |
| Decomposition temperature                        | : | No data available  |
| Viscosity  |   |                    |

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Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle size : Not applicable

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Can react with strong oxidizing agents.

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Components:****Ampicillin:**

Acute oral toxicity : LD50 (Rat): 10,000 mg/kg  
LD50 (Mouse): 15,200 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 6,200 mg/kg  
Application Route: Intravenous  
LD50 (Mouse): 4,600 mg/kg  
Application Route: Intravenous

**Skin corrosion/irritation**

Not classified based on available information.

**Serious eye damage/eye irritation**

Not classified based on available information.

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### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### Components:

##### Ampicillin:

Routes of exposure : Inhalation  
Result : Sensitizer

### Germ cell mutagenicity

Not classified based on available information.

#### Components:

##### Ampicillin:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Test system: mouse lymphoma cells  
Result: negative

Test Type: sister chromatid exchange assay  
Test system: Chinese hamster ovary cells  
Result: negative

Test Type: Chromosomal aberration  
Test system: Chinese hamster ovary cells  
Result: negative

Test Type: Chromosomal aberration  
Test system: Human lymphocytes  
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Rat  
Application Route: Oral  
Result: negative

### Carcinogenicity

Not classified based on available information.

#### Components:

##### Ampicillin:

Species : Rat  
Application Route : Oral  
Exposure time : 2 Years  
: 750 mg/kg body weight  
Tumor Type : adrenal, Leukemia, breast tumors

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|                              |   |  |
|------------------------------|---|--|
| Species                      | : | Mouse  |
| Application Route            | : | Oral   |
| Exposure time                | : | 2 Years  |
|                              | : | 3,000 mg/kg body weight  |
| Tumor Type                   | : | Lungs  |
| Remarks                      | : | Benign tumor(s)  |
| Carcinogenicity - Assessment | : | Weight of evidence does not support classification as a carcinogen |

### Reproductive toxicity

Not classified based on available information.

#### Components:

##### Ampicillin:

|                              |   |  |
|------------------------------|---|--|
| Effects on fertility         | : | Test Type: Fertility<br>Species: Guinea pig<br>Target Organs: Uterus (including cervix)  |
| Effects on fetal development | : | Test Type: Development<br>Species: Rat<br>Developmental Toxicity: NOAEL: 250 mg/kg body weight<br>Result: No effects on fetal development. |

### STOT-single exposure

Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Repeated dose toxicity

#### Components:

##### Ampicillin:

|                   |   |  |
|-------------------|---|--|
| Species           | : | Rat                                      |
| LOAEL             | : | 3,000 mg/kg                              |
| Application Route | : | Oral                                     |
| Exposure time     | : | 13 Weeks                                 |
| Symptoms          | : | Diarrhea                                 |
| Species           | : | Mouse                                    |
| LOAEL             | : | 2,000 mg/kg                              |
| Application Route | : | Oral                                     |
| Exposure time     | : | 13 Weeks                                 |
| Symptoms          | : | Diarrhea                                 |
| Species           | : | Rat                                      |
| LOAEL             | : | 750 mg/kg                                |
| Application Route | : | Oral                                     |
| Exposure time     | : | 2 y                                      |
| Target Organs     | : | Thyroid, forestomach                     |
| Symptoms          | : | Diarrhea, Salivation, decreased activity |



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|                   |   |   |
|-------------------|---|---|
| Species           | : | Mouse                                       |
| LOAEL             | : | 2,000 mg/kg                                 |
| Application Route | : | Oral  |
| Exposure time     | : | 2 y   |
| Target Organs     | : | forestomach                                 |
| Symptoms          | : | Ulceration, Inflammation, fungal infections |

### Aspiration toxicity

Not classified based on available information.

### Experience with human exposure

#### Components:

#### **Ampicillin:**

|            |   |  |
|------------|---|--|
| Inhalation | : | Symptoms: Asthma, Hay fever<br>Remarks: May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Ingestion  | : | Symptoms: skin rash, Nausea, Diarrhea, Vomiting, colitis, urticaria  |

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### **Ampicillin:**

|   |   |   |
|---|---|---|
| Toxicity to fish                                    | : | LC50 ( <i>Oryzias latipes</i> (Japanese medaka)): > 1,000 mg/l<br>Exposure time: 96 h<br><br>LC50 ( <i>Oncorhynchus mykiss</i> (rainbow trout)): > 100 mg/l<br>Exposure time: 96 h  |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 ( <i>Daphnia magna</i> (Water flea)): > 100 mg/l<br>Exposure time: 48 h  |
| Toxicity to algae/aquatic plants                    | : | EC50 ( <i>Anabaena flos-aquae</i> ): 190 µg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br><br>NOEC ( <i>Anabaena flos-aquae</i> ): 13 µg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br><br>EC50 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br><br>NOEC ( <i>Pseudokirchneriella subcapitata</i> (green algae)): 100 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201 |

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Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209

NOEC: 9 mg/l  
Exposure time: 3 h  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209

**Persistence and degradability****Components:****Ampicillin:**

Biodegradability : Result: rapidly degradable  
Biodegradation: 35 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**Bioaccumulative potential****Components:****Ampicillin:**

Partition coefficient: n-octanol/water : log Pow: -2.0  
pH: 7

**Mobility in soil**

No data available

**Other adverse effects**

No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

Not regulated as a dangerous good

**IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

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Not regulated as a dangerous good

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

Not applicable for product as supplied.

### Domestic regulation

#### TDG

Not regulated as a dangerous good

### Special precautions for user

Not applicable

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## SECTION 15. REGULATORY INFORMATION

### The ingredients of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

AllC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Sub-

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stances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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