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

Product Identifier

Material Name: Pipracil

Trade Name: Not established
Synonyms: Pipracillin sodium
Chemical Family: Penicillin

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Intended Use: Pharmaceutical active

Details of the Supplier of the Safety Data Sheet

Pfizer Global Supply
Pfizer Inc
235 East 42nd Street
New York, NY 10017
1-800-879-3477

Emergency telephone number:
CHEMTREC (24 hours): 1-800-424-9300
Contact E-Mail: pfizer-MSDS@pfizer.com

2. HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS - Classification
Respiratory Sensitization: Category 1
Skin Sensitization: Category 1

US OSHA Specific - Classification
Physical Hazard: Combustible Dust
EU Classification:
EU Indication of danger: Xn - Harmful
EU Risk Phrases:
R42/43 - May cause sensitization by inhalation and skin contact.

Label Elements
Signal Word: Danger
Hazard Statements:
May form combustible dust concentrations in air
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
Precautionary Statements:
- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P284 - Wear respiratory protection
- P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician
- P302+ P352 - IF ON SKIN: Wash with plenty of soap and water
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P362 - Take off contaminated clothing and wash before reuse
- P501 - Dispose of contents/container in accordance with all local and national regulations

Other Hazards
Australian Hazard Classification (NOHSC):

Note:
This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EU EINECS/ELINCS List</th>
<th>EU Classification</th>
<th>GHS Classification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piperacillin sodium</td>
<td>59703-84-3</td>
<td>261-868-6</td>
<td>Xn;R42/43</td>
<td>Resp. Sens. 1,H334 Skin Sens. 1,H317</td>
<td>100</td>
</tr>
</tbody>
</table>

Additional Information:
Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

For the full text of the R phrases and CLP/GHS abbreviations mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of First Aid Measures
Eye Contact: Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately.

Skin Contact: Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.
Ingestion: Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

Inhalation: Remove to fresh air and keep patient at rest. Seek medical attention immediately.

Most Important Symptoms and Effects, Both Acute and Delayed
Symptoms and Effects of Exposure: For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

Medical Conditions Aggravated by Exposure: None known

Indication of the Immediate Medical Attention and Special Treatment Needed
Notes to Physician: None

5. FIRE FIGHTING MEASURES

Extinguishing Media: Extinguish fires with CO2, extinguishing powder, foam, or water.

Special Hazards Arising from the Substance or Mixture
Hazardous Combustion Products: Formation of toxic gases is possible during heating or fire.

Fire / Explosion Hazards: Dust can form an explosive mixture in air. Fine particles (such as dust and mists) may fuel fires/explosions.

Advice for Fire-Fighters
During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

Environmental Precautions
Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

Methods and Material for Containment and Cleaning Up
Measures for Cleaning / Collecting: Remove all sources of ignition. Contain the source of the spill if it is safe to do so. Collect spilled material by a method that controls dust generation. Avoid use of a filtered vacuum to clean spills of dry solids. Clean spill area thoroughly.

Additional Consideration for Large Spills: Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Ground and bond all bulk transfer equipment. Avoid open handling. Minimize dust generation. Use local exhaust ventilation or perform work under fume hood/fume cupboard. Avoid inhalation and contact with skin, eye, and clothing. When handling, use appropriate personal protective equipment (see Section 8). Wash hands and any exposed skin after removal of PPE. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

Conditions for Safe Storage, Including any Incompatibilities
Storage Conditions: Store at room temperature in properly labeled containers. Keep away from heat, sparks and flames.
**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control Parameters**

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

**Piperacillin sodium**

- **Pfizer Occupational Exposure Band (OEB):** OEB 1 - Sensitizer (control exposure to the range of 1000ug/m³ to 3000ug/m³)

**Exposure Controls**

- **Engineering Controls:** Engineering controls should be used as the primary means to control exposures. Use process containment, local exhaust ventilation, or other engineering controls to maintain airborne levels within the OEB range.
- **Personal Protective Equipment:** Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).
  - **Hands:** Wear impervious gloves as minimum protection.
  - **Eyes:** Wear safety glasses as minimum protection.
  - **Skin:** Wear impervious protective clothing when handling this compound.
  - **Respiratory protection:** If airborne exposures are within or exceed the Occupational Exposure Band (OEB) range, wear an appropriate respirator with a protection factor sufficient to control exposures to the bottom of the OEB range.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State:</strong></td>
<td>Powder</td>
</tr>
<tr>
<td><strong>Odor:</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Molecular Formula:</strong></td>
<td>C23 H26 N5 Na O7 S</td>
</tr>
<tr>
<td><strong>Color:</strong></td>
<td>White to off-white</td>
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<tr>
<td><strong>Odor Threshold:</strong></td>
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</tr>
<tr>
<td><strong>Molecular Weight:</strong></td>
<td>539.54</td>
</tr>
<tr>
<td><strong>Solvent Solubility:</strong></td>
<td>Highly soluble: Alcohol</td>
</tr>
<tr>
<td><strong>Water Solubility:</strong></td>
<td>Soluble</td>
</tr>
<tr>
<td><strong>pH:</strong></td>
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</tr>
<tr>
<td><strong>Melting/Freezing Point (°C):</strong></td>
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</tr>
<tr>
<td><strong>Boiling Point (°C):</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Partition Coefficient:</strong></td>
<td>(Method, pH, Endpoint, Value)</td>
</tr>
<tr>
<td><strong>Piperacillin sodium</strong></td>
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</tr>
<tr>
<td><strong>Evaporation Rate (Gram/s):</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Vapor Pressure (kPa):</strong></td>
<td>No data available</td>
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<tr>
<td><strong>Vapor Density (g/ml):</strong></td>
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</tr>
<tr>
<td><strong>Relative Density:</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Viscosity:</strong></td>
<td>No data available</td>
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<tr>
<td><strong>Flammability:</strong></td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature (Solid) (°C):</td>
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</tr>
<tr>
<td>Flammability (Solids):</td>
<td>No data available</td>
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<tr>
<td>Flash Point (Liquid) (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper Explosive Limits (Liquid) (% by Vol.):</td>
<td>No data available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under normal conditions of use.
Possibility of Hazardous Reactions
   Oxidizing Properties: None
   Conditions to Avoid: Fine particles (such as dust and mists) may fuel fires/explosions.
   Incompatible Materials: As a precautionary measure, keep away from strong oxidizers
   Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects
Short Term: Individuals who are allergic to penicillin antibiotics could have allergic reaction, possibly severe.
Known Clinical Effects: Ingestion of this material may cause effects similar to those generally seen in clinical use of antibiotics including gastrointestinal irritation, vomiting, transient diarrhea, nausea, and abdominal pain. Pseudomembranous colitis (manifested by watery diarrhea, urge to defecate, abdominal cramps, low-grade fever, bloody stools, and abdominal pain) may also occur. Individuals who are allergic to penicillin antibiotics might exhibit allergic reactions, possibly severe.

Acute Toxicity: (Species, Route, End Point, Dose)

Piperacillin sodium
   Rat Oral LD50 > 10 g/kg

Reproduction & Developmental Toxicity: (Study Type, Species, Route, Dose, End Point, Effect(s))

Piperacillin sodium
   Reproductive & Fertility Rat Oral 0.5 times human dose NOAEL No effects at maximum dose
   Reproductive & Fertility Mouse Oral 0.5 times human dose NOAEL No effects at maximum dose
   Embryo / Fetal Development Rat No route specified Dose not specified Not Teratogenic
   Embryo / Fetal Development Mouse No route specified Not Teratogenic

Genetic Toxicity: (Study Type, Cell Type/Organism, Result)

Piperacillin sodium
   Bacterial Mutagenicity (Ames) Salmonella Negative
   In Vivo Chromosome Aberration Mouse Bone Marrow Negative

Carcinogenicity: (Duration, Species, Route, Dose, End Point, Effect(s))

Carcinogen Status: Not listed as a carcinogen by IARC, NTP or US OSHA.

12. ECOLOGICAL INFORMATION

Environmental Overview: Environmental properties have not been investigated. Releases to the environment should be avoided.
Toxicity: No data available
Persistence and Degradability: No data available
Bio-accumulative Potential: No data available
Mobility in Soil: No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods: Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

14. TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Canada - WHMIS: Classifications
WHMIS hazard class:
Class D, Division 2, Subdivision A

Piperacillin sodium
CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Not Listed
Australia (AICS): Present
EU EINECS/ELINCS List: 261-868-6
16. OTHER INFORMATION

Text of R phrases and GHS Classification abbreviations mentioned in Section 3

H317 - May cause an allergic skin reaction
Sensitization, skin-Cat.1; H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
Sensitization, respiratory-Cat.1;

Xn - Harmful

R42/43 - May cause sensitization by inhalation and skin contact.

Data Sources: The data contained in this MSDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.

Revision date: 12-Apr-2015
Product Stewardship Hazard Communication


Pfizer Inc believes that the information contained in this Material Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet