

# Amikacin Sulfate Injection, USP

## 1. PRODUCT IDENTIFICATION

|                               |  |
|-------------------------------|--|
| <b>Product Name</b>           | Amikacin Sulfate Injection, USP  |
| <b>Product Use</b>            | Broad Spectrum Antibiotic  |
| <b>Manufacturer</b>           | Teva Parenteral Medicines, Inc.  |
| <b>Address</b>                | 11 Hughes<br>Irvine, CA 92618-1902   |
| <b>Chemtrec Emergency No.</b> | 1-800-424-9300 (United States)<br>1-202-483-7617 (International Collect)   |
| <b>Business Phone</b>         | 1-800-729-9991   |
| <b>Website Address</b>        | <a href="http://www.newsicor.com">http://www.newsicor.com</a>  |
| <b>Common Names</b>           | Antibiotic BB-K 8 <sup>®</sup> , Amikin <sup>®</sup> , Amiklin <sup>®</sup> , Biklin <sup>®</sup> , Fabianol <sup>®</sup> , Novamin <sup>®</sup>   |
| <b>Chemical Name</b>          | O-3-Amino-3-deoxy- $\alpha$ -D-glucopyranosyl-(1 $\rightarrow$ 6)-O-[6-amino-6-deoxy- $\alpha$ -D-Glucopyranosyl(1 $\rightarrow$ 4)]-N1-(4-amino-2-hydroxy-1-oxybutyl)-2-deoxy-D-Streptamine |
| <b>Chemical Formula</b>       | C <sub>22</sub> H <sub>43</sub> N <sub>5</sub> O <sub>13</sub> · 2H <sub>2</sub> SO <sub>4</sub>   |
| <b>Chemical Family</b>        | Aminoglycoside Antibiotic  |
| <b>How Supplied</b>           | 250 mg/mL in 2 mL and 5 mL vial<br>50 mg/mL in 2 mL vial   |
| <b>Date of Preparation:</b>   | December 2, 2005   |

## 2. COMPOSITION AND INGREDIENTS

| CHEMICAL NAME                 | CAS#       | EXPOSURE LIMITS IN AIR |                    |      |      |      |       |
|-------------------------------|------------|------------------------|--------------------|------|------|------|-------|
|                               |            | Wt%                    | ACGIH              |      | OSHA |      | Other |
|                               |            |                        | TLV                | STEL | PEL  | STEL |       |
| Amikacin Sulfate, USP         | 39831-55-5 | 25 or 5.0              | NE                 | NE   | NE   | NE   | NE    |
| Sodium Citrate Dihydrate, USP | 18996-35-5 | 2.5                    | NE                 | NE   | NE   | NE   | NE    |
| Sodium Metabisulfite, USP     | 7681-57-4  | 0.7                    | 5mg/m <sup>3</sup> | NE   | NE   | NE   | NE    |
| Water                         | 7732-18-5  | Balance                | NE                 | NE   | NE   | NE   | NE    |

NE - Not Established C - Ceiling Limit \* Innovator's Exposure Limit

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1 format

CHEMTREC NUMBER: Use only in the event of a chemical emergency involving a spill, leak, fire, exposure or accident involving this drug.

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## 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Material is a clear, colorless to straw-colored, odorless liquid. Eye and skin irritant. Overexposure may cause damage to hearing, nervous system and kidneys. May cause allergic skin and respiratory reactions. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Symptoms of Overexposure by Route of Exposure: This material is intended for injection under the supervision of physicians.

Inhalation: Inhalation of significant amounts of the product is not anticipated to occur because of the small size of individual containers.

Contact with Skin or Eyes: Contact may cause irritation. Effects may include stinging, watering, redness and swelling of the eyes and redness, itching, burning and skin damage. May cause an allergic skin reaction.

Ingestion: Ingestion is not an anticipated route of occupational exposure. However, it is considered slightly toxic based on animal data. Symptoms similar to those identified under injection may occur. Ingestion may also cause allergic reaction due to the bisulfite present in the solution.

Injection: Local redness and pain are the primary symptoms of accidental injection in an occupational setting. Medical personnel are not anticipated to experience over-exposures to the therapeutic doses of this product. However, effects including coughing, sneezing, runny nose, nausea, vomiting, dizziness, loss of balance and hearing loss may occur. See package insert for other adverse reactions associated with therapeutic doses of this product.

### Health Effects or Risks From Exposure (An explanation in lay terms):

Acute: The primary health effects anticipated in an occupational setting include irritation of eyes and skin as well as redness and local swelling after accidental injection. In case of over-exposure by injection, effects such as coughing, sneezing, runny nose, nausea, vomiting, dizziness, loss of balance and hearing loss may occur.

Cancer: No long-term carcinogenicity studies were identified. See Section 11 for carcinogenicity information for the non-active ingredient.

Chronic: Overexposure may cause damage to hearing, kidneys and nervous system (see Section 11).

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin, kidney, nervous system and hearing disorders.

## 4. FIRST-AID MEASURES

Skin Exposure: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

Eye Exposure: Move victim away from exposure and into fresh air. If irritation or redness develops, flush eyes with clean water and seek medical attention. For direct contact, hold eyelids apart and flush the affected eye(s) with clean water for at least 15 minutes. Seek medical attention.

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## 4. FIRST-AID MEASURES cont...

Inhalation: If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion: If swallowed, seek emergency medical attention. If victim is drowsy or unconscious and vomiting, place on the left side with the head down and DO NOT give anything by mouth. If not vomiting and professional advice is not available, DO NOT induce vomiting. If possible, do not leave victim unattended and observe closely for adequacy of breathing.

Victims of chemical exposure must be taken for medical attention. Take a copy of the MSDS to the physician or health professional with victim. Physicians should refer to Section 11 (Toxicological Information) as well as the Physicians Desk Reference for additional treatment information.

## 5. FIRE-FIGHTING MEASURES

Flash Point: Non-flammable      Autoignition Temperature: Not applicable

Flammable Limits (in air by volume, %): Lower: Not applicable    Upper: Not applicable

Fire Extinguishing Equipment: Use extinguishing agent suitable for type of surrounding fire.

Water Spray: OK    Carbon Dioxide: OK      Halon: OK  
Foam: OK      Dry Chemical: OK      Other: Any "ABC" Class

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are expected.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

Special Fire Fighting Procedures: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Contain spill if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Cool equipment exposed to fire with water, if it can be done with minimal risk.

NFPA HAZARD CLASS:      Health:      1 (Slight)  
    Flammability:      0 (Least)  
    Reactivity:      0 (Least)

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### 6. ACCIDENTAL RELEASE MEASURES

#### Spill and Leak Response:

For small releases of this product, wear latex or nitrile gloves and safety glasses. Absorb spilled liquid and rinse area thoroughly with soap and water.

For large or uncontrolled releases, stay away from spill. Isolate immediate hazard area and keep unauthorized personnel out. Contain spill if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Notify appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended.

### 7. HANDLING and STORAGE

Work and Hygiene Practices: As with all chemicals, avoid getting this product ON YOU or IN YOU. Do not eat, drink, smoke or apply cosmetics while handling the product. Wash hands thoroughly after handling.

Particular care in working with this product must be practiced in pharmacies and other preparation areas, during manufacture of this product, and during patient administration. Precautions should be taken during the following activities:

- Withdrawal of needles from drug vials.
- Drug transfers using syringes and needles or filter straws.
- Expulsion of air from drug-filled syringes.

Storage and Handling Practices: Employees must be trained to properly use the product. Ensure vials are properly labeled. Store only in approved containers. Protect from light. Keep away from any incompatible materials or conditions (see Section 10). Store at 4°C (39°F).

Protective Practices During Maintenance of Contaminated Equipment: When cleaning non-disposable equipment, wear latex or nitrile gloves (double gloving is recommended), goggles, and lab coat. Wash equipment with soap and water. All needles, syringes, vials and other disposable items contaminated with this product should be disposed of properly.

### 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Ventilation and Engineering Controls: Use with adequate ventilation. Follow standard medical product handling procedures.

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### 8. EXPOSURE CONTROLS - PERSONAL PROTECTION cont...

**Respiratory Protection:** Not normally required for routine, medical administration of this product. A NIOSH certified air-purifying respirator with a type 95 filter may be used under conditions where airborne concentrations are expected to be excessive. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**Eye Protection:** Approved eye protection to safeguard against potential eye contact, irritation or injury is recommended. Depending on conditions of use, a face shield may be necessary.

**Hand Protection:** Use latex, nitrile, or rubber gloves. Check gloves for leaks. Wash hands before and after using gloves.

**Body Protection:** No special body protection required for routine, medical administration of this product. Wear lab coat, gown, or smock, as appropriate for procedure.

**Product Preparation Instructions for Medical Personnel:** Follow standard procedure for handling pharmaceutical materials and recommendations presented on the Package Insert.

### 9. PHYSICAL and CHEMICAL PROPERTIES

|  |                  |                              |                  |
|--|------------------|------------------------------|------------------|
| Relative Vapor Density (air = 1):                              | Similar to water | Evaporation Rate (n-BuAc=1): | Similar to water |
| Specific Gravity (water = 1):                                  | ~1               | Melting/Freezing Point:      | Not determined   |
| Solubility in Water:   | Soluble          | Boiling Point:               | ~100°C (212°F)   |
| Vapor Pressure, mm Hg @ 25°C:                                  | 18               | pH:                          | No data          |
| Odor Threshold: Not determined                                 |                  |                              |                  |
| Appearance and Color: Clear, colorless to straw-colored liquid |                  |                              |                  |

ND = No Data

### 10. STABILITY and REACTIVITY

**Stability:** Stable under normal conditions of storage and handling.

**Materials With Which Substance is Incompatible:** This product is generally compatible with other common materials in a medical facility. Keep away from oxidizing agents.

**Hazardous Polymerization:** Will not occur.

**Hazardous Combustion Products:** Heat may cause product to decompose, destroying the product or producing toxic fumes.

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### 11. TOXICOLOGICAL INFORMATION

Toxicity Data: The following information is for Amikacin Sulfate the active ingredient

|                               |                                     |
|-------------------------------|-------------------------------------|
| Oral LD50(rat) = 4 g/kg       | Subcutaneous LD50(rat) = 3.6 g/kg   |
| Oral LD50 (mouse) = 10.7 g/kg | Subcutaneous LD50(mouse) = 2.5 g/kg |
| Oral LD50 (rabbit) > 3 g/kg   | IV LD50 (rabbit) = 248 mg/kg        |
| IV LD50(rat) = 234 mg/kg      | IV LD50(mouse) = 181 mg/kg          |
| IV LD50 (dog) = 383 mg/kg     | IM LD50 (rat) = 2.2 mg/kg           |
| IM LD50 (mouse) = 1.2 mg/kg   | IM LD50 (rabbit) >3 g/kg            |
| IM LD50 (dog) > 667 mg/kg     | IM LD50 (Monkey) > 1.3 mg/kg        |
| IP LD50((rat) = 3.5 g/kg      | IP LD50 (mouse) = 2.9 g/kg          |

Suspected Cancer Agent: No long-term animal studies were identified. It is not listed as carcinogenic by NTP, IARC or OSHA.

Irritancy of Product: This product is expected to be irritating to eyes and skin.

Sensitization to the Product: Rare instances of allergic response after repeated clinical use has been reported.

Reproductive Toxicity Information: Listed below is information concerning the effects of Amikacin Sulfate on human and animal reproductive systems. This material is classified as a Pregnancy Category D (Positive evidence of risk).

Mutagenicity: No data identified.

Embryotoxicity/Teratogenicity/Reproductive Toxicity: Reproduction studies in rats showed no adverse effects on fertility with doses up to 200 mg/kg/day. Generally considered negative for birth defects. Studies in multiple species have not found the effects observed with other aminoglycoside antibiotics (ototoxicity in offspring). The State of California under Proposition 65 has listed aminoglycosides as a class as developmental toxicants, although not specifically listing amikacin.

ACGIH Biological Exposure Indices: Currently there are no Biological Exposure Indices (BEIs) associated with the components of this product.

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## 12. ECOLOGICAL INFORMATION

All work practices must be aimed at eliminating environmental contamination.

Environmental Stability: This product will be relatively stable under ambient environmental conditions.

Effect of Materials on Plants or Animals: No specific information is available on the effect of Amikacin Sulfate on plants or animals in the environment.

Effect of Chemicals on Aquatic Life: No specific information is available on the effect of Amikacin Sulfate on plants or animals in the aquatic environment.

## 13. DISPOSAL CONSIDERATIONS

Preparing Wastes for Disposal: This material, if discarded as produced, is not a RCRA "listed" or "characteristic" hazardous waste. Use resulting in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials consult state and local regulations regarding the proper disposal of this material.

U.S. EPA Waste Number: None

## 14. TRANSPORTATION INFORMATION

This Materials is not Hazardous as Defined by 49 CFR 172.101 by the U. S. Department of Transportation

Proper Shipping Name: Not applicable

Hazard Class Number and Description: Not applicable

UN Identification Number: Not applicable

Packing Group: Not applicable

DOT Label(s) Required: Not applicable

North American Emergency Response Guidebook Number (1996): Not applicable.

MARINE POLLUTANT: No component of this product is listed as a Marine Pollutant (49 CFR 172.101, Appendix B)

Transport Canada Transportation of Dangerous Goods Regulations: Not applicable

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## 15. REGULATORY INFORMATION

### U.S. REGULATIONS:

U.S. SARA Reporting Requirements: The components of this product are not subject to the reporting requirements of Sections 302, 304 and 313 of Title II of the Superfund Amendments and Reauthorization Act.

U.S. SARA Threshold Planning Quantity: Not applicable

U.S. CERCLA Reportable Quantities (RQ): Not applicable

U.S. TSCA Inventory Status: Amikacin Sulfate is a "drug" as defined by the Federal Food, Drug and Cosmetic Act and is therefore not a chemical substance under TSCA.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product contains a chemical known to the State of California to cause developmental effects – Amikacin Sulfate.

Other U.S. Federal Regulations: Based on this product's use, the requirements of the OSHA Bloodborne Pathogen Standard (29 CFR 1910.1030) are applicable.

### CANADIAN REGULATIONS:

Canadian DSL/NDL Status: Amikacin Sulfate is regulated by the Food and Drug Administration of Health Canada and is therefore exempt from the requirements of CEPA.

ANSI Labeling (Based on 129.1, Provided to Summarize Occupational Exposure Hazards): Eye and skin irritant. Overexposure may cause damage to hearing, nervous system and kidneys. May cause allergic skin and respiratory reactions. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling. Avoid accidental injection. Do not eat, drink or smoke when handling. Clean up spills promptly.

## 16. OTHER INFORMATION

Issue Date: 12/02/05

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