



SHIJIAZHUANG LONZEAL PHARMACEUTICALS CO., LTD.
No. 16 West Ring Road, Shenze Shijiazhuang 052560 China
Tel: +86-311-83571299 Tax: +86-311-83571266 Web: www.lonzeal.com

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

Product Name: Tenofovir Disoproxil Fumarate
Manufacturer: Shijiazhuang Lonzeal Pharmaceuticals Co., Ltd.
Manufacturer Address : No. 16, West Ring Road, Shenze, Shijiazhuang,
Hebei Province, 052560 P. R. China
Tel: +86-311-83571299
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Section 2 - Product Information

CAS No.: [202138-50-9]
Molecular Formula: $C_{19}H_{30}N_5O_{10}P \cdot C_4H_4O_4$
Molecular Weight: 635.51
Product Group: Nucleotide analog.

Section 3 – Physical and Chemical Properties

Physical Form: Solid Powder
Color: White to off-White
Odor: Odorless
Melting Point: 113~118°C
Solubility: Freely soluble in dimethylformamide; soluble in methanol, in dilute hydrochloric acid, and in ethanol; sparingly soluble in acetone and in isopropanol; slightly soluble in acetonitrile and in ethyl acetate; insoluble in dichloromethane and in hexane.



Section 4 – Hazards Identification

- Physical hazards:** Not classified
- Health hazards:** Serious eye damage/eye irritation
- OSHA hazard(s):** Not classified.
- Hazard statement:** Causes serious eye damage.

Precautionary statement

- Prevention:** Wear eye/face protection.
- Response:** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/medical professional.
- Storage:** Not available.
- Disposal:** Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 5 – First Aid Measures

- Inhalation:** If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
- Skin contact:** Rinse skin with water/shower. Get medical attention if irritation develops and persists.
- Eye contact:** Flush eyes immediately with large amounts of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
- Ingestion:** Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
- Most important symptoms/effects, acute and delayed:**
Irritation of eyes and mucous membranes.

General information:



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Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

Section 6 – Stability and Reactivity

Reactivity: No reactivity hazards known.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous

Reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: None known.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition

Products: NO_x, PO_x. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

Section 7 – Handling and Storage

Precautions for safe handling: As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After



removing gloves, wash hands and other exposed skin thoroughly.

Conditions for safe storage, including any incompatibilities:

Store in tight container as defined in the USP-NF. This material should be handled and stored at 2~8°C.

Section 8 – Personal Protection

Biological limit values: No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls:

Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Avoid any open handling of this material, particularly for grinding, crushing, weighing, or other dust-generating or aerosol-generating procedures. Use a laboratory fume hood,



vented enclosure, glovebox, or other effective containment.

Individual protection measures, such as personal protective equipment

Eye/face protection:

Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.

Skin protection Hand protection:

Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact.

Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy. This material is corrosive. To reduce the risk of contamination of skin and surfaces, wear two pairs of gloves. Remove the outer gloves after handling and cleanup of the material, and remove the inner gloves only after removing other personal protective equipment.

Other:



For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.

Respiratory protection:

Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place.

Thermal hazards: Not available.

General hygiene, Considerations:

Handle in accordance with good industrial hygiene and safety practice.

Section 9 – Fire and Explosion Hazard Data

Suitable extinguishing media: Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical:

No unusual fire or explosion hazards noted.

Special protective equipment and precautions for firefighters:

Wear suitable protective equipment.

Fire-fighting equipment/instructions:

As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and



protective clothing.

Specific methods: Cool containers exposed to flames with water until well after the fire is out.

Section 10 – Accidental Release Measures

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact: Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact: Flush eyes immediately with large amounts of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion: Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed:

Irritation of eyes and mucous membranes.

Indication of immediate medical attention and special treatment needed

Treatment of overdose should be symptomatic and supportive. Administer activated charcoal as a slurry. For seizures, administer a benzodiazepine intravenously, followed by phenobarbital or propofol if the seizures recur. Monitor for hypotension, dysrhythmias, respiratory depression, and need for endotracheal intubation. Evaluate for hypoglycemia, electrolyte disturbances, hypoxia. For severe metabolic acidosis, administer sodium bicarbonate intravenously. Riboflavin and L-Carnitine have also been used to treat patients with lactic acidosis associated with nucleoside analogs. Monitor blood counts. Monitor fluid balance, serum



electrolytes, CPK, liver enzymes, and renal functions. Monitor pancreatic enzyme levels. Hemodialysis may aid in removal from the blood.

General information:

Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures.

Section 11 –Toxicological Information

Information on likely routes of exposure

Ingestion: Due to lack of data the classification is not possible.

Inhalation: Due to lack of data the classification is not possible.

Skin contact: Due to lack of data the classification is not possible.

Eye contact: Causes serious eye damage.

Symptoms related to the physical, chemical, and toxicological characteristics: Nausea.

Vomiting. Diarrhea. Abdominal pain. Gas. Loss of appetite.

Dizziness. Fatigue. Headache. Weakness. Depression.

Delayed and immediate effects of exposure: Kidney damage.

Lactic acidosis. Bone density loss.

Medical conditions aggravated by exposure:

Kidney impairment. Liver impairment. Hepatitis. Risk factors for osteoporosis or bone loss.

Acute toxicity:

Due to lack of data the classification is not possible.

Skin corrosion/irritation:

Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation:



Causes serious eye damage.

Skin sensitization:

Based on available data, the classification criteria are not met.

Section 12 – Ecological information

Persistence and degradability: Not readily biodegradable.

Bioaccumulative potential: Not available.

Mobility in soil: Not available.

Other adverse effects: Not available.

Section 13 – Disposal Consideration

Disposal instructions: This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations: Not available.

Hazardous waste code: Not regulated.

Waste from residues / unused products: Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Section 14 – Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA



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Not regulated as a dangerous good.

Section 15 - Regulatory Information

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories: Immediate Hazard - No

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

International Inventories

Country(s) or region Inventory name On inventory (yes/no)*

Australia: Australian Inventory of Chemical Substances (AICS) No

Canada: Domestic Substances List (DSL) No

Canada: Non-Domestic Substances List (NDSL) No

China: Inventory of Existing Chemical Substances in China (IECSC) No

Europe: European Inventory of Existing Commercial Chemical No Substances
(EINECS)

Europe: European List of Notified Chemical Substances (ELINCS) No

Japan: Inventory of Existing and New Chemical Substances (ENCS) No

Korea: Existing Chemicals List (ECL) No

Section 16 - Additional Information

While the information herein is believed to be reliable, it is furnished without warranty of any kind. It shall be used only as a guide. We assume no liabilities from the use of this product or information contained herein.