



300 Northfield Road
 Bedford, OH 44146
 Telephone: (800) 562-4797
 -or- (440) 232-3320

MATERIAL SAFETY DATA SHEET

Section I - IDENTITY

Common/Trade Name: Cyclosporin Concentrate for Injection USP (50mg/ml; 5ml/vial)
Chemical Name: [R-[R*,R*-(E)]]-cyclic(L-alanyl-D-alanyl-N-methyl-L-leucyl-N-methyl-L-leucyl-N-methyl-L-valyl-3-hydroxy-N,4-dimethyl-L-2-amino-6-octenoyl-L- α -amino-butryl-N-methylglycyl-N-methyl-L-leucyl-L-valyl-N-methyl-L-leucyl)
Synonyms: Sandimmune® Injection, Antibiotic S7481F1, Ramihyphin A
Manufacturer's Name: BEN VENUE LABORATORIES, INC.
Address: 300 NORTHFIELD ROAD
 BEDFORD, OH 44146
Emergency Telephone Number: Chemtrec: 1(800) 424-9300
Telephone Number for Info.: (440) 232-3320 or (800) 562-4797
Medical Emergency: Professional Services: 1(800) 521-5169
Date Prepared: July 15, 1999
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Section II - HAZARDOUS INGREDIENTS/COMPOSITION INFORMATION

<u>Component</u>	<u>%</u>	<u>CAS#</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits Recommended</u>
Cyclosporine, USP	5%	79217-60-0	NONE	NONE	0.02mg/m ³
Ethyl Alcohol, USP (v/v)	26.4%	64-17-5	1000 ppm	1000 ppm	NONE
Cremophor® (polyoxy-Ethylated castor oil)	65%	61791-12-6	NONE	NONE	NONE
Water for Injection	3.6%	7732-18-5	NONE	NONE	NONE

Cyclosporin is a sterile injectable liquid drug provided in a 5 mL vial.

Section III - HEALTH HAZARD DATA

Routes of Entry: Product is an immunosuppressive and may be absorbed via skin, inhalation, or ingestion. Product is intended for intradermal administration for the prevention of rejection following organ (kidney, liver and heart) transplantation.
Health Hazard (Acute & Chronic): Product affects the immune system, kidneys, liver, central nervous system, pancreas, and cardiovascular system. Product is a human carcinogen and may be a reproductive health hazard and mutagen.

Carcinogenicity: NTP? YES **IARC Monographs?** YES Sufficient Human Evidence
Limited Animal Evidence
Group 1

OSHA Regulated? NO

Signs & Symptoms of Exposure: Irritation to eyes, skin, and respiratory tract or possible allergic reaction. kidney toxicity, bleeding, tender/swollen gums, increased hair growth, trembling hands, headache, leg cramps, nausea or vomiting, fever, chills, and the urge to urinate.
Cyclosporin has been found excreted in human milk.

Medical Conditions Generally Aggravated by Exposure: Allergic reaction to Cyclosporin and/or Cremophor EL®

BVL Hazard Category: 4

Section IV - FIRST AID MEASURES

Eye Exposure: Flush eyes with large volumes of water for 15 or more minutes.

Skin Exposure: Wash skin with cool, soapy water.

Ingestion: If ingestion occurs, flush mouth out with water and seek medical attention immediately.
If person is conscious, induce vomiting. Never induce vomiting on an unconscious person.

Inhalation: If difficulty breathing, administer oxygen. Seek attention of a physician immediately.
If necessary, provide artificial respiration.
Overdose should be treated symptomatically

Section V - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): 80°F Closed-cup

Flammable Limits: Not Available **LEL:** Not Available **UEL:** Not Available

Extinguishing Media: Use a multi-purpose ABC fire extinguisher.

Special Fire Fighting Procedures: As with all fires, evacuate personnel to a safe area. Fire fighters should wear self-contained breathing apparatus to avoid inhalation of smoke.

Unusual Fire/Explosion Hazards: Ethyl alcohol is flammable. Keep this product away from ignition sources.

Section VI - ACCIDENTAL RELEASE INFORMATION

Release to Land: Since Cyclosporin is a flammable solution, remove all sources of ignition. Absorb Cyclosporin with activated charcoal or sorbent pads and dispose of according to local, state, and federal guidelines.

Release to Air: If aerosolized, reduce exposures by ventilating area; clean up spills immediately to prevent evaporation.

Release to Water: Refer to local water authority. Do not dispose of down the drain.

Section VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled: See Section VI above. Wear nitrile gloves and safety glasses. If vapors are generated, an appropriate air purifying respirator with an organic vapor cartridge and HEPA Filter (P100) must be worn. For larger spills, additional PPE and respiratory protection may be needed such as chemical protective coveralls, boots, double gloves (neoprene/nitrile), and self-contained breathing apparatus (SCBA).

Waste Disposal Method: Incinerate in an approved incinerator for flammable liquids according to local guidelines.

Precautions to be taken in handling and storing: Wash hands following use. No eating, drinking, or smoking while handling this product.

Other Precautions: Store below 86°F (30°C). Protect from light. Do not freeze.

Section VIII - CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Under normal use, respirators are not required. If aerosols/vapors are generated, an air purifying respirator with organic vapor and HEPA cartridges (P100) may be necessary. For large spills, SCBA may be required. Personnel wearing respirators should be fit tested and approved for respirator use under the OSHA Respiratory Protection Standard 29 CFR 1910.134.

Ventilation: Handle in biological safety hood or a well-ventilated area.

Protective Gloves: Nitrile

Eye Protection: Safety glasses or splash goggles

Other Protective Clothing or Equipment: Lab coat

Work/Hygienic Practices: Wash hands following handling. No eating, drinking, or smoking while handling Cyclosporin.

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical State: Liquid

Appearance and Odor: Clear with a mild odor

Boiling Point: Not Available

Vapor Pressure: Not Available

Vapor Density: Not Available

Specific Gravity: Not Available

Melting Point: Not Available

Evaporation Rate: Not Available

Solubility in Water: Not Available

pH: Not Available

Section X - STABILITY AND REACTIVITY DATA

Stability: Stable

Incompatibility (Materials to Avoid): Strong bases and oxidizers

Hazardous Decomposition or Byproducts: Decomposition of this product may include potentially hazardous byproducts of combustion such as nitrogen oxides, carbon monoxide, and carbon dioxide.

Hazardous Polymerization: Will not occur

Conditions to Avoid: Do not store with strong bases and oxidizers

Section XI - TOXICOLOGICAL INFORMATION

For Cyclosporin: RTECS # GZ4110000

LD₅₀ rat, oral = 1480 mg/kg

LD₅₀ mouse, oral = 2329 mg/kg

LD₅₀ rabbit, oral > 1000 mg/kg

LD₅₀ mouse, intravenous = 148 mg/kg

LD₅₀ mouse, intramuscular = 145 mg/kg

Additional reproductive health and toxicity data is available from the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS).

Section XII - ENVIRONMENTAL IMPACT INFORMATION

Information is currently not available on the environmental impact of Cyclosporin. Handle in a manner to prevent spills or releases to the environment.

Section XIII - DISPOSAL INFORMATION

Dispose of by hazardous waste incineration at an approved/permitted facility according to local, state, and federal guidelines. Cyclosporin is flammable EPA code: D001
Follow local, state, and federal regulations.

Section XIV - TRANSPORTATION INFORMATION

Cyclosporin is a Hazardous Material per 49 CFR 172.101
Proper Shipping Name: Ethanol Solutions
Hazard class: 3 (Flammable liquid)
UN ID Number: UN 1170
Label and Placards: Flammable Liquid
Packing Group: II
Emergency Response Guide: 131
The chemicals in this product are not classified as DOT Marine Pollutants

Section XV - REGULATORY INFORMATION

SARA 313 listed?: NO
CERCLA listed?: NO
RCRA listed?: YES; D001 – Cyclosporin is a characteristic Flammable Waste D001.

Section XVI - OTHER DATA

1. Use of this product should be through or under the direction of a physician.
This MSDS does not address the therapeutic use of this material.
2. Persons administering this drug to patients must be careful to avoid needle sticks to syringes and other sharps used in the administration. All needle sticks must be reported to your company management.
3. BVL Hazard Category Definitions (internal hazard ranking used by Ben Venue Laboratories):
1 = Low Toxicity
2 = Moderate Toxicity
3 = Potent or Toxic
4 = Highly Potent or Toxic
5 = Extremely Potent or Toxic
4. OEL=Occupational Exposure Limit. An internal limit set by Ben Venue Laboratories for the recommended limit of employee exposure to airborne dusts or aerosols that should not be exceeded over an eight-hour time-weighted average.

5. Cyclosporin is considered a Hazardous Drug as described in the NIOSH Alert: Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings. Employees who prepare or administer hazardous drugs or who work in areas where these drugs are used should follow specific handling guidelines in order to prevent exposure to these agents in the air or on work surfaces, clothing, or equipment.

6. **The Following Guidance Information is excerpted from the NIOSH Alert:**

Elements of a Hazardous Drug Handling Program include:

- Establishment and implementation of written policies and protocols to ensure the safe handling of oncolytic and/or potent drugs, including receipt of product.
- Training and education of employees on the recognition, evaluation and control of Hazardous Drugs
- Effective Planning and design of the workplace
- Use of best practice control measures and specialized equipment such as ventilated cabinets or isolators designed for worker protection
- Wearing recommended personal protective equipment
- An integrated health surveillance program that: includes the assessment and counseling of prospective employees before they commence any work involving oncolytic and/or potent drugs and related waste

7. **Published guidance on the handling and transport of cytotoxic drugs:**

NIOSH Alert – Preventing occupational exposures to antineoplastic and other hazardous drugs in health care settings

<http://www.cdc.gov/niosh/docs/2004-165/>

National Study Commission on Cytotoxic Exposure: Recommendation for handling Cytotoxic Agents:

<http://www.nih.gov/od/ors/ds/pubs/cyto/index.htm>

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