Nortriptyline Hydrochloride Oral Solution

Eli Lilly and Company
Material Safety Data Sheet

Effective Date: 10-Feb-2004

Section 1 - Chemical Product and Company

Manufacturer:
Eli Lilly and Company
Lilly Corporate Center
Indianapolis, IN 46285

Manufacturer's Emergency Phone:
1-317-276-2000
CHEMTREC:
1-800-424-9300 (North America)
1-703-527-3887 (International)

Common Name: Nortriptyline Hydrochloride Oral Solution

Chemical Name: 1-Propanamine, 3-(10,11-dihydro-5H-dibenzo[a,d]cyclohepten-5-ylidene)-N-methyl-, hydrochloride
Synonym(s): Nortriptyline; Nortriptyline hydrochloride; 038489 Formulation
Trademarks(s): Acetexa; Branorflox; Paxtibi; Vividyl; Aventyl; Allegron
Lilly Item Code(s): DD5010; LQ0038; LQ5010; UC5965; UE0013

See attached glossary for abbreviations.

Section 2 - Composition / Information on Ingredients

Ingredient	CAS	Concentration %
Nortriptyline Hydrochloride	894-71-3	0.23
Sorbitol Solution	NA/NAIF	64
Ethyl Alcohol	64-17-5	4
Water	7732-18-5	30

Contains no hazardous components (one percent or greater) or carcinogens (one-tenth percent or greater) not listed above.

Exposure Guidelines:
Nortriptyline hydrochloride - LEG 20 micrograms/m3 TWA for 12 hours.

Ethyl alcohol - PEL and TLV 1000 ppm (1900 mg/m3) TWA.
UK - Exposure Standard 1000 ppm (1920 mg/m3) TWA.
Ireland - Occupational Exposure Limit 1000 ppm (1900 mg/m3) TWA.
Italy - Occupational Exposure Limit 1000 ppm TWA.
France - Occupational Exposure Limit 1000 ppm (1900 mg/m3) (VME) TWA, 5000 ppm (9500 mg/m3) (VLE) STEL.

Spain - Occupational Exposure Limit 1000 ppm (1910 mg/m3) (VLA-ED) TWA.
Germany - TRGS 900 Limit Value 500 ppm (960 mg/m3), 15-minute limit not to exceed 4 times MAK.

Section 3 - Hazards Identification

Appearance: Clear colorless solution
Physical State: Liquid
Odor: Faint cherry

Emergency Overview

Emergency Overview Effective Date: 31-Jul-1999

Lilly Laboratory Labeling Codes:
Health 0 **Fire** 2 **Reactivity** 0

Primary Physical and Health Hazards: Combustible Liquid. Nervous System and Heart Effects.

Caution Statement: Nortriptyline Hydrochloride Oral Solution contains ethyl alcohol and is a combustible liquid. Effects of exposure to Nortriptyline Hydrochloride Oral Solution may include drowsiness and change in heart rate/rhythm.

Routes of Entry: Inhalation and skin contact.

Effects of Overexposure: Solution is intended for human consumption under guidance of a physician. Solution is not considered hazardous under normal handling procedures. However, exposure to the components may produce signs and symptoms as indicated.
Nortriptyline hydrochloride - Based on clinical data, effects of exposure may include drowiness, decreased blood pressure, irregular heartbeats and blurred vision.
Ethyl alcohol - May include irritation of the eyes, skin, and respiratory tract, drowsiness, nausea, muscle incoordination, visual impairment, slowed reaction time, sensory loss, slurring of speech, stupor, and possible coma and death. Dilute solutions of ethyl alcohol are not expected to be irritating.

Medical Conditions Aggravated by Exposure:
Ethyl alcohol - Ingestion of large volumes may aggravate liver disorders, hypersensitivity to alcohol, and gastrointestinal abnormalities (peptic ulcers, gastritis).

Carcinogenicity:
Ethyl alcohol - ACGIH A4 - (not classifiable as a human carcinogen). Not listed by NTP or OSHA. Alcohol drinking is listed as IARC Group 1.

Remaining ingredients - Not listed by IARC, NTP, ACGIH, or OSHA.

Section 4 - First Aid Measures

Eyes: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. See an ophthalmologist (eye doctor) or other physician immediately.

Skin: Remove contaminated clothing and clean before reuse. Wash all exposed areas of skin with plenty of soap and water. Get medical attention if irritation develops.

Inhalation: Move individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

Ingestion: Do not induce vomiting. Call a physician or poison control center. If available, administer activated charcoal (6-8 heaping teaspoons) with two to three glasses of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

Section 5 - Fire Fighting Measures

Flash Point: 58 C (136 F)
Flash Method: Tag Closed Cup
UEL: No applicable information found
LEL: No applicable information found

Extinguishing Media: Use water, carbon dioxide, dry chemical, foam, or Halon.

Unusual Fire and Explosion Hazards: Combustible. Flash point below 93.3 C (200 F). Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back.

Hazardous Combustion Products: May emit toxic fumes when exposed to heat or fire.

Section 6 - Accidental Release Measures

Spills: Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions). Prevent further migration into the environment. Use absorbent/adsorbent material to solidify liquids. Solidification may not suppress vapors. Do not vacuum. Avoid any source of ignition. Use non-sparking equipment.

Section 7 - Handling and Storage

Storage Conditions: Store in a cool, dry, well-ventilated area. Keep away from heat, sparks, and open flame. Refrigerator: 2 to 8 C (36 to 46 F).

Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guideline information.

Under normal use and handling conditions, no protective equipment is required. The following is recommended for a production setting:

Respiratory Protection: Use an approved respirator.

Eye Protection: Chemical goggles and/or face shield.

Ventilation: Laboratory fume hood or local exhaust ventilation.

Other Protective Equipment: Chemical-resistant gloves and body covering to minimize skin contact. If handled in a ventilated enclosure, as in a laboratory setting, respirator and goggles or face shield may not be required. Safety glasses are always required.

Section 9 - Physical and Chemical Properties

Appearance: Clear colorless solution
Odor: Faint cherry
Boiling Point: No applicable information found
Melting Point: Not applicable
Specific Gravity: 1.138 to 1.160
pH: 2.5 to 4.0
Evaporation Rate: No applicable information found
Water Solubility: Soluble
Vapor Density: No applicable information found
Vapor Pressure: No applicable information found

Section 10 - Stability and Reactivity

Stability: Stable at normal temperatures and pressures.

Incompatibility: May react with strong oxidizing agents (e.g., peroxides, permanganates, nitric acid, etc.).

Hazardous Decomposition: May emit toxic fumes when heated to decomposition.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

Acute Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

Oral:
Nortriptyline hydrochloride - Rat, median lethal dose 502 mg/kg, increased activity, convulsions.

Ethyl alcohol - Rat, median lethal dose 7060 mg/kg.

Skin:
Ethyl alcohol - Rabbit, median lethal dose greater than 20 g/kg.

Inhalation:
Ethyl alcohol - Rat, median lethal concentration 20,000 ppm for 10 hours (approximately 200,000 ppm for 1 hour).

Intravenous:
Nortriptyline hydrochloride - Rat, median lethal dose 22.3 mg/kg, increased activity, convulsions.

Skin Contact:
Ethyl alcohol - Rabbit, irritant

Eye Contact:
Ethyl alcohol - Rabbit, irritant

Chronic Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

Target Organ Effects:
Nortriptyline hydrochloride - Nervous system effects (reduced activity, incoordination).
Ethyl alcohol - Nervous system effects (depression), liver and kidney effects (tissue changes).

Reproduction:
Nortriptyline hydrochloride - No effects identified in animal studies.
Ethyl alcohol - Decreased fertility, fetal growth retardation, increased behavioral abnormalities in offspring, and decreased offspring survival at doses toxic to the mother.

Sensitization: No applicable information found.

Mutagenicity:
Ethyl alcohol - Not mutagenic in bacterial or mammalian cells.

Section 12 - Ecological Information

No environmental data for the mixture or formulation. The environmental information for ingredient(s) or related material(s) are presented.

Ecotoxicity Data:
Ethyl alcohol
Rainbow trout 96-hour median lethal concentration: 13 g/L
Fathead minnow 96-hour median lethal concentration: 13.5 g/L
Daphnia magna 48-hour median lethal concentration: 9.3 g/L
Blue-green algae (A. aeruginosa) 8-day median effective concentration: 1450 mg/L
Microorganisms:

Green algae (C. pyrenoidosa): MIC 1.18%

Environmental Fate:
Ethyl alcohol
Log Kow: -0.31
Atmospheric half-life (days): 4 to 5.9
5-Day biological oxygen demand: 37 to 86%

Environmental Summary:
Ethyl alcohol - Practically non-toxic to aquatic organisms. Material can be considered not to bioaccumulate and will have little adsorption to the soil. Ethanol will photodegrade and biodegrade when released to the environment and can not be considered to be persistent in the environment.

Section 13 - Disposal Considerations

Waste Disposal: Dispose of any cleanup materials and waste residue according to all applicable laws and regulations.

Section 14 - Transport Information

Regulatory Organizations:

DOT:
Proper Shipping Name: Flammable liquids, n.o.s. (contains ethyl alcohol)
UN/NA: UN1993
Hazard Class: 3
Packing Group: III

ICAO/IATA:
Proper Shipping Name: Flammable liquids, n.o.s. (contains ethyl alcohol)
UN/NA: UN1993
Hazard Class: 3
Packing Group: III

IMO:
Proper Shipping Name: Flammable liquids, n.o.s. (contains ethyl alcohol)
UN/NA: UN1993
Hazard Class: 3
Packing Group: III

This material in final packaged form may be shipped under the Consumer Commodity exception by Highway within the United States under limited circumstances. Please contact your local Hazardous Material/Dangerous Goods representative for the proper use of this exception.

Additional Information: Label(s): 3

Section 15 - Regulatory Information

Below is selected regulatory information chosen primarily for possible Eli Lilly and Company usage. This section is not a complete analysis or reference to all applicable regulatory information. Please consider all applicable laws and regulations for your country/state.

U.S. Regulations

Nortriptyline hydrochloride and sorbitol solution
TSCA - No
CERCLA - Not on this list
SARA 302 - Not on this list
SARA 313 - Not on this list
OSHA Substance Specific - No

Ethyl alcohol
TSCA - Yes
CERCLA - Not on this list
SARA 302 - Not on this list
SARA 313 - Not on this list
OSHA Substance Specific - No

EU Regulations

EC Classification
Not assigned an overall EC classification.

Section 16 - Other Information

MSDS Sections Revised: Section 2.

As of the date of issuance, we are providing available information relevant to the handling of this material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS MATERIAL SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature which may accompany the finished product.

For additional information contact:
Eli Lilly and Company
Hazard Communication
317-277-6029

For additional copies contact:
Eli Lilly and Company
1-800-LILLY-Rx (1-800-545-5979)

GLOSSARY:

ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
BEI = Biological Exposure Index
CAS Number = Chemical Abstract Service Registry Number
CERCLA = Comprehensive Environmental Response Compensation and Liability Act (of 1980)
CHAN = Chemical Hazard Alert Notice
CHEMTREC = Chemical Transportation Emergency Center
DOT = Department of Transportation
EC = European Community
EINECS = European Inventory of Existing Chemical Substances
ELINCS = European List of New Chemical Substances
EPA = Environmental Protection Agency
HEPA = High Efficiency Particulate Air (Filter)
IARC = International Agency for Research on Cancer
ICAO/IATA = International Civil Aviation Organization/International Air Transport Association
IEG = Lilly Interim Exposure Guideline
IMO = International Maritime Organization
Kow = Octanol/Water Partition Coefficient
LEG = Lilly Exposure Guideline
LEL = Lower Explosive Limit
MSDS = Material Safety Data Sheet
MSHA = Mine Safety and Health Administration
NA = Not Applicable, except in Section 14 where NA = North America
NADA = New Animal Drug Application
NAIF = No Applicable Information Found
NCI = National Cancer Institute
NIOSH = National Institute for Occupational Safety and Health
NOS = Not Otherwise Specified
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit (OSHA)
RCRA = Resource Conservation and Recovery Act
RQ = Reportable Quantity
RTECS = Registry of Toxic Effects of Chemical Substances
SARA = Superfund Amendments and Reauthorization Act
STEG = Lilly Short Term Exposure Guideline
STEL = Short Term Exposure Limit
TLV = Threshold Limit Value (ACGIH)
TPQ = Threshold Planning Quantity
TSCA = Toxic Substances Control Act
TWA = Time Weighted Average/8 Hours Unless Otherwise Noted
UEL = Upper Explosive Limit
UN = United Nations
WEEL = Workplace Environmental Exposure Level (AIHA)