AMITRIPTYLINE HYDROCHLORIDE

GHS SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AMITRIPTYLINE HYDROCHLORIDE

OTHER NAMES

C20-H23-N-HCl, C20-H23-N-HCl, "amitriptyline chloride", "amytryptyline hydrochloride", "5(3-dimethylaminopropylidene)dibenzp[a, d](1, 4)cycloheptadiene hydrochloride" , "1-propanamine, 3-(10, 11-dihydro-5H-dibenzo[a, d]cyclohepten-5-ylidene)-N, N-dimethyl, HCl", Amitid, Amitril, "Damilen Hydrochloride", Deprex, Domical, Elavil, Miketorin, "Elavil Hydrochloride", "Proheptadien Monohydrochloride", Rantoron, Saroten, Sarotene

PROPER SHIPPING NAME

MEDICINE, SOLID, TOXIC, N.O.S.

PRODUCT USE

A tricyclic antidepressant with marked anticholinergic and sedative properties. Prevents the re-uptake and hence the inactivation of noradrenaline and serotonin at nerve terminals. Used in the treatment of depression especially endogenous depression. Given for the treatment of nocturnal enuresis in children. The active form of the drug appears to be the metabolite nortriptiline
CAUTION: May modify behaviour and state of alertness; exposed individuals taking charge of vehicles or machinery should be warned of the hazards. The sedative effect of tricyclic antidepressants is NOT delayed.
Amitriptyline has a high in vitro affinity for alpha1, histamine H1 and muscarinic receptors.

SUPPLIER

Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898

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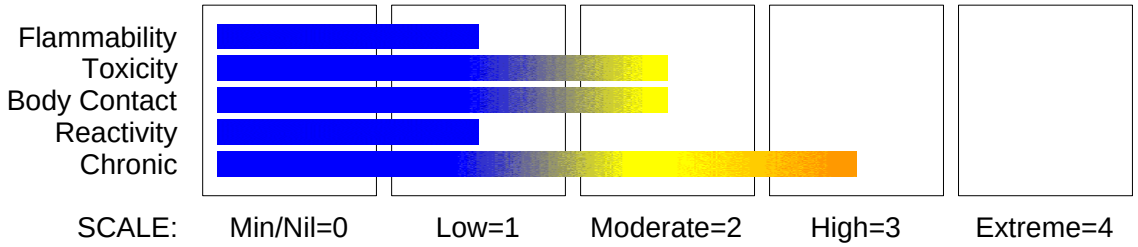
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 2
Eye Irritation Category 2A
Reproductive Toxicity Category 1B

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H300 H319 H360
Fatal if swallowed
Causes serious eye irritation
May damage the unborn child

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.
Obtain special instructions before use.
Use personal protective equipment as required.
Do not handle until all safety precautions have been read and understood.
Do not eat, drink or smoke when using this product.

Response

Wear eye/face protection.
If eye irritation persists, get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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If exposed or concerned: Get medical attention advice.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment: refer to Label or MSDS.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
amitriptyline hydrochloride	549-18-8	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.
Poison Information Centres in each State capital city can provide additional assistance.

EYE

If this product comes in contact with the eyes:
· Wash out immediately with fresh running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· If pain persists or recurs seek medical attention.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.
· Flush skin and hair with running water (and soap if available).
· Seek medical attention in event of irritation.

INHALED

· If dust is inhaled, remove from contaminated area.
· Encourage patient to blow nose to ensure clear passage of breathing.
· If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Readily absorbed from the gastrointestinal tract with peak plasma concentrations occurring within 6 hours of oral administration. Because amitriptyline slows gastrointestinal transit time, absorption may be delayed especially in overdose.
Extensively demethylated in the liver producing the primary active metabolite nortriptyline. Excreted in the urine mainly as free or conjugated metabolites. Reported plasma half-life range from 9 to 25 hours. Extensively bound to plasma and tissue protein.
For tricyclic antidepressant poisonings: The stomach should be emptied by aspiration and

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lavage. Activated charcoal as an adjunct to gastric lavage may also be used. Supportive therapy alone may then suffice for patients who are not severely poisoned. In particular monitor for cardiac arrhythmias and institute anti-arrhythmic measures necessary (digoxin and physostigmine salicylate are NOT recommended). Convulsions may be managed by intravenous diazepam. Physostigmine (not neostigmine) may also be used to control convulsions but caution must be exercised. Barbiturates are generally not advocated since they exacerbate respiratory depression. Some workers claim promising results with charcoal haemoperfusion in severely poisoned patients.
MARTINDALE: The Extra Pharmacopoeia, 28th Edition.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
· Water spray or fog.
· Foam.
· Dry chemical powder.
· BCF (where regulations permit).
· Carbon dioxide.

FIRE FIGHTING
· Alert Fire Brigade and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.
· Prevent, by any means available, spillage from entering drains or water courses.
· Use fire fighting procedures suitable for surrounding area.
· DO NOT approach containers suspected to be hot.
· Cool fire exposed containers with water spray from a protected location.
· If safe to do so, remove containers from path of fire.
· Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
· Solid which exhibits difficult combustion or is difficult to ignite.
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
· Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
· Build-up of electrostatic charge may be prevented by bonding and grounding.
· Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
· All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.
Combustion products include: nitrogen oxides (NOx) and hydrogen chloride.

FIRE INCOMPATIBILITY
Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Personal Protective Equipment
Breathing apparatus.
Gas tight chemical resistant suit.

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Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS
- Clean up all spills immediately.
- Wear protective clothing, safety glasses, dust mask, gloves.
- Secure load if safe to do so. Bundle/collect recoverable product.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Water may be used to prevent dusting.
- Collect remaining material in containers with covers for disposal.
- Flush spill area with water.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	+	X	0	+

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
- Avoid generating and breathing dust
- Avoid contact with skin and eyes.
- Wear nominated personal protective equipment when handling.
- Use in a well-ventilated area.
- Use good occupational work practices.
- Observe manufacturer's storing and handling recommendations.

SUITABLE CONTAINER
Packaging as recommended by manufacturer.

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· Check that containers are clearly labelled.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.
Avoid strong bases.
Reaction with alkali will produce toxic free amine. Thermally decomposes

STORAGE REQUIREMENTS

· Store in original containers.
· Keep containers securely sealed.
· Store in a cool, dry, well-ventilated area.
· Store away from incompatible materials and foodstuff containers.
· Protect containers against physical damage and check regularly for leaks.
· Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records
• amitriptyline hydrochloride: CAS:549- 18- 8 CAS:8058- 15- 9

MATERIAL DATA

CEL TWA: 0.1 mg/m3 (Mercke, Sharpe and Dohme)
The recommended exposure level is based on one of amitriptyline hydrochloride principal actions, sedation, and the fact that amitriptyline is a long acting drug and bioaccumulation must be considered. Sedation may occur at doses of about 8 mg. Other effects are confusion, dry mouth and skin rash. In order to avoid these reactions with an adequate safety margin, industrial intake should be limited to 1 mg/day or 0.1 mg/m3.

PERSONAL PROTECTION




EYE

No special equipment needed when handling small quantities of substance.
For bulk handling wear:
Chemical goggles or
Face shield.

HANDS/FEET

Rubber gloves
PVC gloves
Protective shoe covers
Head covering.

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OTHER
No special equipment when handling small quantities of substance otherwise:
Coveralls
For Emergencies:
Vinyl suit
Safety shower

RESPIRATOR
High Efficiency Dust Respirator (P2, P3)
For non-routine emergencies wear full face mask self-contained breathing apparatus.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS
Enclosed local exhaust ventilation is required at points of dust, fume or vapour generation.
HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapours.
Barrier protection or laminar flow cabinets should be considered for laboratory scale handling.
When handling quantities up to 500 kilogram,work in either a standard laboratory with general dilution ventilation (e.g. 6-12 air changes per hour) is preferred. Quantities up to 1 kilogram may require a designated laboratory using fume hood, biological safety cabinet, or approved vented enclosures. Quantities exceeding 1 kilogram should be handled in a designated laboratory or containment laboratory using appropriate barrier/ containment technology.
Manufacturing and pilot plant operations require barrier/ containment and direct coupling technologies.
Barrier/ containment technology and direct coupling (totally enclosed processes that create a barrier between the equipment and the room) typically use double or split butterfly valves and hybrid unidirectional airflow/ local exhaust ventilation solutions (e.g. powder containment booths). Glove bags, isolator glove box systems are optional.
HEPA filtration of exhaust from dry product handling areas is required.
Fume-hoods and other open-face containment devices are acceptable when face velocities of at least 1 m/s (200 feet/minute) are achieved. Partitions, barriers, and other partial containment technologies are required to prevent migration of the material to uncontrolled areas. For non-routine emergencies maximum local and general exhaust are necessary. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Type of Contaminant:	Air Speed:
solvent, vapours, etc. evaporating from tank (in still air)	0.25- 0.5 m/s (50- 100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2.5 m/s (200-500 f/min.) for extraction of gases discharged 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

The need for respiratory protection should also be assessed where incidental or accidental exposure is anticipated: Dependent on levels of contamination, PAPR, full face air purifying devices with P2 or P3 filters or air supplied respirators should be evaluated.
The following protective devices are recommended where exposures exceed the recommended exposure control guidelines by factors of:
10; high efficiency particulate (HEPA) filters or cartridges
10-25; loose-fitting (Tyvek or helmet type) HEPA powered-air purifying respirator.
25-50; a full face-piece negative pressure respirator with HEPA filters
50-100; tight-fitting, full face-piece HEPA PAPR
100-1000; a hood-shroud HEPA PAPR or full face-piece supplied air respirator operated in pressure demand or other positive pressure mode.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Odourless, colourless or white powder with bitter, burning taste followed

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by sensation of numbness; mixes with water (1:1), alcohol (1:1.5), acetone (1:56), chloroform (1:1.2) and methanol (1:1).

PHYSICAL PROPERTIES
Solid.
Mixes with water.

Molecular Weight: 313.9
Melting Range (°C): 195- 199
Solubility in water (g/L): Miscible
pH (1% solution): 4.5 - 6.0
Volatile Component (%vol): Negligible
Relative Vapour Density (air=1): Not available
Lower Explosive Limit (%): Not available
Autoignition Temp (°C): 372
State: Divided solid

Boiling Range (°C): Not available
Specific Gravity (water=1): Not available
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not available
Flash Point (°C): Not available
Upper Explosive Limit (%): Not available
Decomposition Temp (°C): Not available

log Kow (Sangster 1997): 5.04

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Many side effects produced by the tricyclic antidepressants are caused by their anticholinergic actions. These include dry mouth, sour or metallic taste, constipation (leading occasionally to paralytic ileum), urinary retention, blurred vision and changes in accommodation, palpitations and tachycardia. Gastrointestinal disturbances (including nausea and vomiting), Drowsiness, tremor, orthostatic hypotension (or occasional hypertension), dizziness, sweating, weakness and fatigue, ataxia, epileptiform seizures, occasional extrapyramidal symptoms (including speech difficulties) may also occur. Allergic skin reactions and photosensitisation have been reported. Rarely, jaundice and blood disorders (including eosinophilia, bone-marrow depression, thrombocytopenia and agranulocytosis) have also been reported. Myocardium effects may produce conduction defects and cardiac arrhythmias. Endocrine effects may produce changes in libido, impotence, enlarged breasts and gynaecomastia and galactorrhoea. Changes in blood sugar levels and reduced levels of antidiuretic hormone may also occur. Overdose may produce excitement and restlessness with marked anticholinergic effects (dry mouth, dilated

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pupils, tachycardia, urinary retention and absence of bowel sounds). More severe poisonings may produce convulsions and myoclonus, hypotension, respiratory and cardiac depression. Life-threatening arrhythmias may recur some days after apparent recovery.

EYE
Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.
Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
The material may produce severe irritation to the eye causing pronounced inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Open cuts, abraded or irritated skin should not be exposed to this material.
Toxic effects may result from skin absorption.

INHALED
Inhalation may produce health damage*.
The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS
Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.
No human exposure data available. For this reason health effects described are based on experience with chemically related materials.
As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

TOXICITY AND IRRITATION

TOXICITY
Oral (child) LDLo: 62.5 mg/kg
Oral (woman) LDLo: 19 mg/kg
Oral (rat) LD50: 240 mg/kg
Oral (rat) LD50: 532 mg/kg *
Intraperitoneal (rat) LD50: 67 mg/kg
Intraperitoneal (rat) LD50: 72 mg/kg *
Subcutaneous (rat) LD50: 385 mg/kg
Subcutaneous (rat) LD50: 1293 mg/kg *
Intravenous (rat) LD50: 14 mg/kg

IRRITATION
Eye (rabbit): SEVERE *
Skin (rabbit): slight *

continued...

Oral (mouse) LD50: 140 mg/kg
Oral (mouse) LD50: 289 mg/kg *
Intraperitoneal (mouse) LD50: 65 mg/kg
Intraperitoneal (mouse) LD50: 76 mg/kg *
Subcutaneous (mouse) LD50: 80 mg/kg
Intravenous (mouse) LD50: 21 mg/kg
Intravenous (rabbit): 9.9 mg/kg *
Oral (dog) LD50: 100 mg/kg *
Intravenous (dog) LD50: >27 mg/kg
Intramuscular (dog) LD50: >23 mg/kg
ADI: 150 mg/day

Sleep, somnolence, hallucinations, convulsions, ataxia, muscle contraction, coma, cardiac changes, lowered blood pressure, dyspnae, cyanosis, respiratory depression, paternal effects, foetotoxicity, foetolethality, specific developmental abnormalities (central nervous system, craniofacial, body wall, musculoskeletal, effects on newborn recorded.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

* Mercke, Sharp and Dohme

Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant:Not Determined
log Kow (Sangster 1997): 5.04

No data for amitriptyline hydrochloride.

Section 13 - DISPOSAL CONSIDERATIONS

· Recycle wherever possible. Special hazard may exist - specialist advice may be required.
· Consult manufacturer for recycling options.
· Consult State Land Waste Management Authority for disposal.
· Bury or incinerate residue at an approved site.
· Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
· Puncture containers to prevent re-use and bury at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: TOXIC
HAZCHEM: 2X

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Section 14 - TRANSPORTATION INFORMATION

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	None
UN Number:	3249	Packing Group:	III

Shipping Name:MEDICINE, SOLID, TOXIC, N.O.S.

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	3249	Packing Group:	III
ERG Code:	6L		

Shipping name:MEDICINE, SOLID, TOXIC, N.O.S.

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	3249	Packing Group:	III
EMS Number:	F- A, S- A	Marine Pollutant:	Not Determined

Shipping name:MEDICINE, SOLID, TOXIC, N.O.S.

Section 15 - REGULATORY INFORMATION

REGULATIONS

amitriptyline hydrochloride (CAS: 549-18-8) is found on the following regulatory lists;
WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established

No data available for amitriptyline hydrochloride as CAS: 8058-15-9.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
amitriptyline hydrochloride	549- 18- 8, 8058 - 15- 9

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 12-May-2018