# SAFETY DATA SHEETS

## This SDS packet was issued with item:

078914400

**The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).**

078547617 078906678 078914399

**The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).**

078437012

# Material Safety Data Sheet

LORAZEPAM TABLETS
(0.5/1.0/2.0 mg)

| 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING | |
|---|---|
| Material | Lorazepam |
| Empirical Chemical Formula | $C_{15}H_{10}C_{l2}N_2O_2$ |
| Synonyms | - |
| Manufacturer | Ohm Laboratories, Inc., 1385 Livingston Ave. North Brunswick, NJ, 08907, USA. |
| Distributor | Ranbaxy Pharmaceuticals Inc., 9431, Florida Mining Blvd. East, Jacksonville, FL, 32257 |

| 2. COMPOSITION / INFORMATION ON INGREDIENTS | | |
|---|---|---|
| Ingredients | CAS Number | Percentage |
| Lorazepam | 846-49-1 | 0.5 mg=1.00%<br>1.0 mg=1.00%<br>2.0 mg=1.60% |
| Non-Hazardous Ingredients | – | 0.5 mg=99.00%<br>1.0 mg=99.00%<br>2.0 mg=98.40% |

| 3. HAZARDS IDENTIFICATION | |
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| Fire and Explosion | Expected to be non-combustible. |
| Health | Adverse effects most commonly reported in clinical use include sedation, dizziness, weakness, clumsy motion of limbs/trunk (ataxia), in coordination, fatigue, drowsiness, amnesia, confusion, state of intense good feeling (euphoria), and suicidal behavior. Benzodiazepines may cause fetal damage when administered during pregnancy. Secreted in human breast milk. |
| Environment | No information is available about the potential of this product to produce adverse environmental effects. |

| 4. FIRST-AID MEASURES | |
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| Ingestion | Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately. |
| Inhalation | Remove to fresh air and keep patient at rest. Seek medical attention immediately. |

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| Skin Contact | Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention. |
| Eye Contact | Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately. |
| NOTES TO PHYSICIANS / HEALTH PROFESSIONALS | |
| Medical Treatment | Treat according to locally accepted protocol. For additional guidance, refer to the current prescribing information or to the local poison control information center.<br>Treatment of benzodiazepine overdose should be symptomatic and supportive and may include the following:<br>1. Do not induce vomiting.<br>2. Administer activated charcoal as slurry.<br>3. Monitor vital signs, manage airway, and provide assisted ventilation if needed.<br>4. Infuse 10 - 20 mL/kg isotonic fluid to control hypotension. If persistent, treat with intravenous administration of a vasopressor such as dopamine or norepinephrine.<br>5. Flumazenil, a benzodiazepine agonist/antagonist, has been administered intravenously to reverse coma and respiratory depression in cases of severe poisoning. Flumazenil use is not recommended in cases where seizures are likely or there is serious cyclic antidepressant poisoning.<br>6. Forced diuresis and hemodialysis are ineffective.<br>7. Manage withdrawal symptoms initially with phenobarbital or the benzodiazepine, then decrease dose by about 10% per day for ten days. |
| Medical Conditions Caused or Aggravated by Exposure | Refer to prescribing information for detail description of medical conditions caused by or aggravated by overexposure to this product.<br>Hypersensitivity to material, alcohol or drug abuse, glaucoma, myasthenia gravis, lung disease, sleep apnea, kidney or liver impairment, seizure disorders, and mental disorders such as depression. |
| Antidotes | Flumazenil, antidote for a benzodiazepine. |

| **5. FIRE-FIGHTING MEASURES** | |
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| Fire and Explosion Hazards | High sensitivity of a dust cloud to ignition, based on minimum ignition energy. Strong dust explosion characteristic. |
| Extinguishing Media | Use carbon dioxide, dry chemical, or water spray. |
| Special Firefighting Procedures | Self contained breathing apparatus and full protective equipment are recommended for firefighters. If possible, contain and collect firefighting water for later disposal. |
| Hazardous Combustion Products | Emits toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride and other chlorine-containing compounds. |

| 6. ACCIDENTAL RELEASE MEASURES | |
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| Personal Precautions | Wear protective clothing and equipment consistent with the degree of hazard. |
| Environmental Precautions | For large spills, take precautions to prevent entry into waterways, sewers, or surface drainage systems. |
| Clean-up Methods | Collect and place it in a suitable, properly labelled container for recovery or disposal. Avoid raising dust. Ventilate area and wash spill site after pick-up complete. |
| Decontamination Procedure | No specific decontamination procedures have been identified for this product. Water can be used for clean-up and decontamination operations. |

| 7. HANDLING AND STORAGE | |
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| Safe Handling and Use | Minimize dust generation and accumulation. If tablets are crushed and/or broken, avoid breathing dust and avoid contact with eyes, skin, and clothing. |
| Storage | No storage requirements necessary for occupational hazards. Follow product information storage instructions to maintain efficacy. |

| 8. EXPOSURE CONTROLS / PERSONAL PROTECTION | |
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| PERSONAL PROTECTIVE EQUIPMENT | |
| Eye Protection | None required for consumer use of this product. Avoid eye contact. |
| Respirators | None required for consumer use of this product. If respiratory protective equipment (RPE) is used, the type of RPE will depend upon air concentrations present, required protection factor as well as hazards, physical properties and warning properties of substances present. |
| Other Equipment or Procedures | None required for consumer use of this product. |
| Work / Hygienic Practices | Follow good Industrial & Personal Hygiene practices. Wash hands thoroughly after handling. |

| 9. PHYSICAL AND CHEMICAL PROPERTIES | |
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| Physical Form (Appearance) | Color & Shape:<br>0.5 mg - White, round, flat face, beveled edge tablets, debossed with RX 7 on one |

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| | side and plain on the other side.<br>1.0 mg - White, round, flat face, beveled edge tablets, debossed with RX above the bisect and 773 below the bisect on one side and plain on the other side.<br>2.0 mg – White to off white round, flat face, beveled edge tablets, debossed with RX above the bisect and 774 below the bisect on one side and plain on the other side. |

| **10. STABILITY AND REACTIVITY** | |
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| Stability | Stable |
| Conditions to Avoid | Avoid exposure to heat and light. |

| **11. TOXICOLOGICAL INFORMATION** | |
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| This material contains active pharmaceutical ingredient Lorazepam, the specific information on which is provided below. | |
| Oral Toxicity | Oral Rat : LD50: 4500 mg/kg<br>Oral Mouse : LD50: 1850 mg/kg<br>Oral Dog : LD50: >2 grams/kg |
| Inhalation Toxicity | n/k |
| Skin Effects | n/k |
| Eye Effects | n/k |
| Target Organ Effects | n/k |
| Sensitisation | n/k |
| Genetic Toxicity | n/k |
| Carcinogenicity | In an 18-month study in rats, Lorazepam showed no evidence of carcinogenic potential. |
| Reproductive Effects | Results were mixed in a meta-analysis of studies that tracked the occurrence of major malformations in infants of mothers who used a benzodiazepine in early pregnancy. There have been reports of newborns exhibiting flaccidity, breathing and feeding problems, and hypothermia after maternal use of benzodiazepines in late pregnancy, and withdrawal symptoms, e.g. tremor and irritability, have been seen in newborns exposed to benzodiazepines in utero.<br>Studies in rabbits have shown that Lorazepam caused anomalies, fetal resorption, and increased fetal loss at oral doses of 40 mg/kg and intravenous doses of 4 mg/kg and higher. The administration of Lorazepam to mice and rats during |

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| | gestation was not associated with an increased incidence of birth defects, except at extremely high doses which caused cleft palate in one study. Some reduction of fetal weight, but no birth defects, occurred in mice and rats when administered up to 4 mg/kg/day during pregnancy. |
| Gastrointestinal Reactions | n/k |
| Hypersensitivity Reactions | n/k |
| Pharmacological Effects | Studies in healthy volunteers show that in single high doses Lorazepam has a tranquilizing action on the central nervous system with no appreciable effect on the respiratory or cardiovascular systems.<br><br>Lorazepam is readily absorbed with an absolute bioavailability of 90 percent. Peak concentrations in plasma occur approximately 2 hours following administration. The peak plasma level of Lorazepam from a 2 mg dose is approx. 20 mg/mL.<br><br>The mean half-life of un-conjugated Lorazepam in human plasma is about 12 hours and for its major metabolite, Lorazepam glucuronide, about 18 hours. At clinically relevant concentrations, Lorazepam is approximately 85% bound to plasma proteins. Lorazepam is rapidly conjugated at its 3-hydroxy group into Lorazepam glucuronide which is then excreted in the urine. Lorazepam glucuronide has no demonstrable CNS activity in animals.<br><br>The plasma levels of Lorazepam are proportional to the dose given. There is no evidence of accumulation of Lorazepam on administration up to six months.<br><br>Studies comparing young and elderly subjects have shown that advancing age does not have a significant effect on the pharmacokinetics of Lorazepam. However, in one study involving single intravenous doses of 1.5 to 3 mg of Lorazepam Injection mean total body clearance of Lorazepam decreased by 20% in 15 elderly subjects of 60 to 84 years of age compared to that in 15 younger subjects of 19 to 38 years of age. |
| Over Dosage | Overdosage of benzodiazepines is usually manifested by varying degrees of central nervous system depression ranging from drowsiness to coma. In mild cases, symptoms include drowsiness, mental confusion, paradoxical reactions, dysarthria and lethargy. In more serious cases, and especially when other drugs or alcohol were ingested, symptoms may include ataxia, hypotonia, hypotension, cardiovascular depression, respiratory depression, hypnotic state, coma, and death. |
| Contraindications | Lorazepam is contraindicated in patients with hypersensitivity to benzodiazepines or to any components of the formulation. Acute narrow-angle glaucoma. |
| Other Information | Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts. Premature infants of mothers receiving Lorazepam had a high |

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| | incidence of depressed respiration, hypothermia and feeding problems. Prolonged use of benzodiazepines can lead to alcoholism-like dependence. Tolerance and withdrawal symptoms are seen in long-term treatment in high doses. Benzodiazepines can cause involuntary movements and difficulties in moving the muscles of the face. Arteriosclerosis, kidney, liver and respiratory conditions can be aggravated. They also cause an increased risk of some birth defects such as cleft palate. Benzodiazepines may be associated with some cancers. |

| **12. ECOLOGICAL INFORMATION** |
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| This material contains an active pharmaceutical ingredient that has been tested, and no environmental effects have been identified. Local regulations and procedures should be consulted prior to environmental release. |
| Do not allow product to enter drinking water supplies, waste water or soil. |

| **13. DISPOSAL CONSIDERATIONS** | |
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| Disposal Recommendations | Material should be disposed of in keeping with all local and national legislation. Packaging should be disposed of in keeping with all local and national legislation. Handle contaminated containers as product. |
| Regulatory Requirements | Observe all local and national regulations when disposing of this product. |

| **14. TRANSPORT INFORMATION** | |
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| The MSDS should accompany all shipments for reference in the event of spillage or accidental release. Only authorized persons trained and competent in accordance with appropriate national and international regulatory requirements may prepare dangerous goods for transport. | |
| Transport Information | Transportation and shipping of this product is not restricted. It has no known, significant hazards requiring special packaging or labelling for air, maritime, US or European ground transport purposes. |

| **15. REGULATORY INFORMATION** | |
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| EU Classification and Labelling | n/k |
| US OSHA Standard (29 CFR Part | n/k |

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| 1910.1200) | |
| OTHER US REGULATIONS | |
| | n/k |

| 16. OTHER INFORMATION |
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| The above information and recommendations are believed to be correct as on date but does not purport to be all-inclusive and shall be used only as a guide. Nothing herein shall be deemed to create any warranty, express or implied. It is the responsibility of the user to determine the applicability of this information and the suitability of the material or product for any particular purpose.<br>Ranbaxy shall not be held liable for any damage resulting from handling or from contact with the above product. Ranbaxy reserves the right to revise this MSDS. |