

PACIFIC PHARMA L.P.

MATERIAL SAFETY DATA SHEET

National Fire Protection Association (NFPA) Rating: Health: 1 Flammability: 0 Reactivity: 0 Special: 0

TELEPHONE CONTACTS:

Product Technical and Medical Information: (800) 433-8871
Transportation Emergency 24-Hour Response (CHEMTREC): (800) 424-9300

SECTION 1: PRODUCT IDENTIFICATION

Compound Name: **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%**
Chemical Class: Beta-Adrenergic Receptor Blocking Agent
Manufacturer's Name: Pacific Pharma L.P.
Address: 2525 Dupont Drive
Irvine, CA 92612
Preparation Date: June 20, 2001 (*Supersedes July 16, 1997*)

SECTION 2: COMPOSITION/HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	Percent (By Weight)	Exposure Limits in Air	
			OSHA PEL	ACGIH TLV
Timolol Maleate, USP	26921-17-5	0.25 and 0.50	N/E	N/E
Sodium Phosphate dibasic, heptahydrate	7782-85-6	2.35	N/E	N/E

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: As with other beta-adrenergic blocking agents, inadvertent overdose or overexposure to **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** may cause dizziness, headache, shortness of breath, bronchospasm, heart rhythm abnormalities, or cardiac arrest. If symptoms develop, seek medical attention immediately.

Potential Health Effects:

Eye Contact: Contact with the eyes may result in mild to moderate transient irritation (burning or stinging) in sensitive individuals. Avoid unintentional contact with the eyes. Overdose or overexposure may result in symptoms associated with beta-adrenergic blocking agents. These may include: headache; dizziness; fatigue; chest pain; nausea; breathing difficulty and cardiac abnormalities.

Skin Contact: Topical administration or exposure may result in systemic absorption, producing symptoms as described above.

Inhalation: The product is non-volatile and inhalation is not likely to occur.

Ingestion: May produce stomach upset and nausea. May be absorbed systemically, resulting in symptoms described above. Significant overexposure may result in heart block or cardiac arrest.

Chronic Effects: Chronic exposure to **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** may produce symptoms similar to those described above. Persons chronically exposed to this material should be periodically monitored for pulmonary abnormalities as well as cardiac irregularities.

No ingredient in this product is regulated or listed as a carcinogen by OSHA, IARC, or NTP.

Conditions Which May Be Aggravated by Exposure: Conditions which may be aggravated by exposure include bronchial asthma, obstructive pulmonary disease, heart rhythm abnormalities, heart disease, or cerebrovascular insufficiencies.

SECTION 4: FIRST AID MEASURES

Eye Contact: If irritation persists, flush eyes with plenty of water for at least 15 minutes. Obtain medical attention if irritation persists or if other symptoms develop.

Skin Contact: Wash skin thoroughly with soap and water. If irritation or other symptoms develop, consult a physician.

Wash contaminated clothing before reuse.

Inhalation: Inhalation is not likely to occur. If symptoms occur, move to fresh air and obtain medical attention. Treat symptomatically.

Ingestion: Seek medical attention immediately. Treatment of an oral overdose includes supportive and symptomatic therapy. Patients should be monitored for signs or symptoms associated with exposure to beta-adrenergic blocking agents including breathing abnormalities, heart irregularities or cardiopulmonary insufficiencies.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point and Method: Greater than 200°F (Seta Flash Cup)

Flammable Limits: Not applicable

Autoignition Temperature: No data for this product

Fire-Extinguishing Materials: Material is non-flammable. Use extinguishing media suitable for materials supporting combustion such as water fog, CO₂, foam or dry chemical.

Firefighting Procedures: Use self-contained breathing apparatus in enclosed or confined spaces or as otherwise needed.

Unusual Fire and Explosion Hazards: None known

SECTION 6: ACCIDENTAL RELEASE MEASURES

Wipe up spilled liquid with absorbent material and wash area with water. If large quantities are spilled, flush spill area with water.

SECTION 7: HANDLING AND STORAGE

Handling: Avoid contact with skin surfaces. Wash thoroughly after handling. Observe all precautions contained on product label and package insert.

Storage: Store in a cool, dry location out of direct sunlight. Keep container closed when not in use.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: None necessary for normal product handling.

Respiratory Protection: None necessary for normal product handling.

Eye Protection: None required for normal product handling. If responding to a spill situation, use safety glasses with side shields.

Protective Clothing: None required for normal product handling. Use latex or chemical resistant gloves and other protective clothing as necessary to avoid liquid contact during spill response.

Hygienic Work Practices: Wash hands thoroughly after handling. If working with large quantities of liquid (such as spill clean-up), use latex or chemical resistant gloves and appropriate eye protection. No eating, drinking or smoking in area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Vapor Density (Air = 1): No data for this product

Boiling Point: >100° C (>212° F)

Solubility in Water: Soluble

Specific Gravity: Approximately 1.0

pH: 6.7 - 7.1

Vapor Pressure (mm Hg at 20° C): No data for this product

Appearance and Odor: Clear liquid with slight odor

SECTION 10: STABILITY AND REACTIVITY

General: This product is stable and hazardous polymerization will not occur.

Incompatible Materials and Conditions to Avoid: Store away from oxidizers and heat. Store below 25 °C.

Hazardous Decomposition: None known

SECTION 11: TOXICOLOGICAL INFORMATION

- Oral:** The oral LD₅₀ for **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** is reported to be 1028 mg/kg in rats and 1137 mg/kg in mice. In other studies, significant lethality was observed in female rats and female mice after a single dose of 900 and 1190 mg/kg of timolol, respectively. No details of the toxic effects were reported. A thirty year old human female who ingested 650 mg of **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** tablets experienced second and third degree heart block. After recovery she subsequently developed irregular heartbeat, hypertension, dizziness, tinnitus, faintness, increased pulse rate and borderline first degree heart block.
- Ocular:** No studies of ophthalmic toxicity in rodents have been reported. The maximum recommended human ophthalmic dose of **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** is equivalent to 7.14 micrograms (µg)/kilogram/day. There are reports of patients developing ocular symptoms (burning, conjunctivitis, discharge and stinging) and systemic symptoms (headache, dizziness, bradycardia) after administration of the therapeutic dose. Persons with chronic obstructive pulmonary disease (e.g. chronic bronchitis, emphysema), bronchospastic disease, bronchial asthma, or history of cardiac disease should not be exposed to **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%**.
- Reproduction:** No teratogenic or reproductive effects were observed in mice, rats and rabbits at doses up to 50 mg/kg/day (7,000 times the maximum recommended human ophthalmic dose). Reproduction and fertility studies in rats demonstrated no adverse effect on male or female fertility at doses up to 21,000 times the systemic exposure following the maximum recommended human ophthalmic dose.
- Mutagenicity:** **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%** was negative when tested *in vivo* (mouse) in the micronucleus test and cytogenetic assay (doses up to 800 mg/kg) and *in vitro* in a neoplastic cell transformation assay (up to 100 µg/mL). Ames testing was negative in three of the four strains tested. In the fourth strain tested (TA100), no consistent dose response relationship was seen, nor did the ratio of test to control revertants reach the criteria for positive Ames test, and therefore the overall result was considered negative.
- Carcinogenicity:** In a lifetime oral study in mice, an increased incidence of benign and malignant pulmonary tumors, benign uterine polyps and mammary adenocarcinomas in female mice was observed at a dose of 500 mg/kg/day (71,000 times the systemic exposure following the maximum recommended human ophthalmic dose). No tumors were observed at doses levels of 5 or 50 mg/kg/day (700 and 7,000 times the recommended human dose).

SECTION 12: ECOLOGICAL INFORMATION

No ecological information is available for the product.

SECTION 13: DISPOSAL CONSIDERATIONS

For small quantities of **Timolol Maleate Ophthalmic Solution, 0.25% and 0.5%**, discard as ordinary trash. For large quantities, contact Allergan for information on disposal options.

SECTION 14: TRANSPORT INFORMATION

Not a hazardous material for DOT, IATA, IMO or TDG shipment.

SECTION 15: REGULATORY INFORMATION

TSCA (Toxic Substances Control Act):

Components of this product are listed on the TSCA Inventory.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

This product contains no components subject to reporting or notification requirements.

SARA Title III (Superfund Amendments and Reauthorization Act):

311/312 Hazard Categories: Immediate Health, Chronic Health

313 Reportable Ingredients: None

WHMIS (Workplace Hazardous Materials Information System - Canada):

Not Regulated (Product is regulated by the Food and Drugs Act)

SECTION 16: OTHER INFORMATION

The preceding information is based on available data and is believed to be correct. However, no warranty is expressed or to be implied regarding the accuracy of this information, the results to be obtained from the use thereof or the hazards connected with the use of the material. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, Allergan does not assume any responsibility for the results of its use. This information is furnished upon the condition that the persons receiving it shall make their own determinations of the effects, properties, and protections which pertain to their particular conditions.