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:	**Levobunolol HCl Sterile Ophthalmic Solution, 0.25% and 0.5%**
Chemical Class:	Beta-Adrenoceptor Blocking Agent
Manufacturer's Name:	Pacific Pharma L.P.
Address:	2525 Dupont Drive Irvine, CA 92612
Preparation Date:	June 20, 2001 (*Supersedes August 4, 1997*)

SECTION 2: COMPOSITION/HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	Percent (By Weight)	Exposure Limits in Air	
			OSHA PEL	ACGIH TLV
Levobunolol HCl	27912-14-7	0.25 and 0.50	N/E	N/E
Sodium Metabisulfite	7681-57-4	0.2	N/E	5.0 mg/M^3
Polyvinyl Alcohol	9002-89-5	1.4	N/E	N/E

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: As with other beta-adrenergic blocking agents, inadvertent overdose or overexposure to **Levobunolol HCl Sterile 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: No data are available regarding overdosage in humans. 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 **Levobunolol HCl Sterile 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. Allergic type reactions, including anaphylactic symptoms and asthmatic response may result from overexposure in persons allergic to the sodium metabisulfite contained in this product.

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, CO_2, 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: 7.1 - 7.3

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

Appearance and Odor: Colorless to light yellow solution; no 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 ^{o}C.

Hazardous Decomposition: None known

SECTION 11: TOXICOLOGICAL INFORMATION

Oral: The oral LD_{50} for Levobunolol HCl (100%) is reported to be 700 mg/kg and 800 mg/kg in male and female rats, respectively; and 344 mg/kg and 273 mg/kg in male and female mice, respectively.
In a chronic toxicity study in rats involving doses of Levobunolol HCl of up to 180 mg/kg/day, mortality in the test groups was lower than that in the controls. No significant behavioral, ophthalmic, hematological or biochemical changes attributable to compound administration were observed. No differences in tumor incidence and types were observed between test and control animals. In a similar one year chronic study involving beagle dogs, no significant abnormalities were observed at doses up to 24 mg/kg/day. At the highest dose, lower heart rates in test animals were observed which returned to normal four weeks post exposure.

Ocular: No adverse ocular effects were observed in rabbits administered **Levobunolol HCl Sterile Ophthalmic Solution, 0.25% and 0.5%** topically in studies lasting one year in concentrations up to 10 times the human dose concentration.

Reproduction: Fetotoxicity (as evidenced by a greater number of resorption sites) has been observed in rabbits when doses of Levobunolol HCl equivalent to 200 and 700 times the recommended dose for the treatment of glaucoma were given. No fetotoxic effects have been observed in similar studies with rats at up to 1800 times the human dose for glaucoma. Teratogenic studies with Levobunolol in rats at doses up to 25 mg/kg/day (1800 times the recommended human dose for glaucoma) showed no evidence of fetal malformations.

Mutagenicity: Levobunolol HCL did not show evidence of mutagenic activity in a battery of microbiological and mammalian *in vitro* and *in vivo* assays

Carcinogenicity: In a lifetime oral study in mice, there were statistically significant increases in the incidence of benign leiomyomas in female mice at 200 mg/kg/day (14,000 times the recommended human dose for glaucoma), but not at 12 or 50 mg/kg/day (850 and 3,500 times the human dose). In a two-year oral study of Levobunolol HCl in rats, there was a statistically significant increase in the incidence of benign hepatomas in male rats administered 12,800 times the recommended human dose for glaucoma. Similar differences were not observed in rats administered oral doses equivalent to 350 times to 2,000 times the recommended human dose for glaucoma.

SECTION 12: ECOLOGICAL INFORMATION

No ecological information is available for the product.

SECTION 13: DISPOSAL CONSIDERATIONS

For small quantities of **Levobunolol HCl Sterile Ophthalmic Solution, 0.25% and 0.5%**, discard as ordinary trash. For large quantities, contact Pacific Pharma 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.