



**Ziac**

Preparation Date 04-Dec-2006

Revision Date 28-Mar-2008

Revision Number 1

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name** Ziac  
**Common Name** Not available  
**Chemical Name** Not applicable  
**Synonyms** Bisoprolol Fumerate, Hydrochlorothiazide  
**Product Use** Pharmaceutical product  
**Classification** Cardiovascular Beta-adrenergic Blocking Agent and Diuretic

**Supplier** Wyeth  
P.O. Box 8299  
Philadelphia, PA 19101 USA.  
Telephone: 1-610-688-4400

**Emergency Telephone Number** Chemtrec USA, Puerto Rico, Canada 1-800-424-9300  
Chemtrec International 1-703-527-3887

**2. HAZARDS IDENTIFICATION**

**Emergency Overview**

This contains an active pharmaceutical ingredient that can affect body functions; handle with caution.

**Appearance** Pharmaceutical Tablet      **Physical State** Solid      **Odor** Not available

**Potential Physical Hazards** Powders and solids are presumed to be combustible.

**Potential Health Effects**

**Eyes** May cause eye irritation.  
**Skin** May cause skin irritation.  
**Inhalation** May cause irritation of respiratory tract.  
**Ingestion** The most common effects may include dryness of mouth, increased thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, gastrointestinal disturbances such as nausea and vomiting, lowered blood pressure, bradycardia, dizziness, headache, acidosis, unconsciousness, ataxia or impaired motor coordination, damage to the ear, and abnormal pulse.

Please see Patient Package Insert for further information.

**Therapeutic Target Organ(s)** Cardiovascular system, Kidneys.

Not listed by OSHA, NTP or IARC.

**Potential Environmental Effects** See Section 12.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name	CAS-No	Composition
Bisoprolol Fumarate	104344-23-2	2.5 - 10 mg/tablet
Hydrochlorothiazide	58-93-5	6.25 mg/tablet
Inactive Ingredients	Not applicable	Remainder

### 4. FIRST AID MEASURES

<b>Eye Contact</b>	In the case of contact with eyes, rinse immediately with plenty of water for 15 minutes and seek medical advice.
<b>Skin Contact</b>	Take off contaminated clothing and shoes immediately. Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
<b>Inhalation</b>	Move to fresh air. Artificial respiration and/or oxygen may be necessary. If symptoms persist, call a physician.
<b>Ingestion</b>	If symptoms persist, call a physician. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

### 5. FIRE-FIGHTING MEASURES

<b>Flammable Properties</b>	Presumed to be a combustible particulate solid.
<b>Extinguishing Media</b>	
<b>Suitable Extinguishing Media</b>	Use water spray, foam, dry chemical or carbon dioxide.
<b>Unsuitable Extinguishing Media</b>	Do NOT use water jet.
<b>Fire Fighting</b>	Evacuate area and fight fire from a safe distance. Cool closed containers exposed to fire with water spray. In the event of fire and/or explosion do not breathe fumes.
<b>Hazardous Combustion Products</b>	Carbon oxides, nitrogen oxides.
<b>Protective Equipment and Precautions for Firefighters</b>	In the event of fire, wear self-contained breathing apparatus and special protective equipment for fire fighters.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Refer to protective measures listed in Sections 7 and 8.
<b>Environmental Precautions</b>	Prevent product from entering drains. Local authorities should be advised if a significant spill cannot be contained.
<b>Methods for Containment</b>	Not available
<b>Methods for Cleaning up</b>	Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. Avoid formation of dust and aerosols.

## 7. HANDLING AND STORAGE

<b>Handling</b>	For personal protection see Section 8. Handle in accordance with good industrial hygiene and safety practice. Skin should be washed after contact. Avoid formation of dust and aerosols.
<b>Storage</b>	No special safety precautions required. Keep container tightly closed.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Common Name</b>	<b>Exposure Guideline</b>
Bisoprolol Fumarate	25 mcg/m <sup>3</sup>
Hydrochlorothiazide	250 mcg/m <sup>3</sup>
<b>Engineering Controls</b>	Apply technical measures to comply with the occupational exposure guideline. Local exhaust ventilation is needed for limited open handling or where aerosols may be generated.
<b>Personal Protective Equipment</b>	
<b>Eye/face Protection</b>	Provide eye protection based on risk assessment.
<b>Skin Protection</b>	Wear nitrile or latex gloves. Wear protective garment.
<b>Respiratory Protection</b>	Base respirator selection on a risk assessment..
<b>General Hygiene Considerations</b>	When using, do not eat, drink or smoke. General industrial hygiene practice. Wash hands before breaks and at the end of workday.
<b>Other</b>	Limit access to only personnel trained in the safe handling of this material Consult a health and safety professional for specific PPE, respirator, and risk assessment guidance

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Pharmaceutical Tablet	<b>Physical State</b>	Solid
<b>Color</b>	Various	<b>Odor</b>	Not available
<b>Odor Threshold</b>	Not available		
<b>pH</b>	Not available		
<b>Specific Gravity</b>	Not applicable	<b>Water Solubility</b>	Not available
<b>Solubility</b>	Not applicable	<b>Evaporation Rate</b>	Not applicable
<b>Partition Coefficient (n-octanol/water)</b>	Not available	<b>Vapor Pressure</b>	Not applicable
<b>Boiling Point</b>	Not available	<b>Autoignition Temperature</b>	Not available
<b>Flash Point</b>	Not available	<b>Method</b>	None
<b>Melting Point</b>	Not available		
<b>Flammability Limits in Air</b>	<b>Upper</b> Not applicable	<b>Lower</b> Not applicable	
<b>Explosion Limits</b>	<b>Upper</b> Not applicable	<b>Lower</b> Not applicable	

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	Stable at room temperature.
<b>Conditions to Avoid</b>	No data available
<b>Materials to Avoid</b>	No materials to be especially mentioned.
<b>Hazardous Decomposition Products</b>	None under normal use.
<b>Possibility of Hazardous Reactions</b>	None under normal use.

## 11. TOXICOLOGICAL INFORMATION

The following effects are based on the Active Pharmaceutical Ingredient.

### Acute Toxicity

#### **Bisoprolol Fumarate**

<b>LD50 Oral</b>	940 mg/kg rats
<b>Acute Dermal Irritation</b>	Not irritating to rabbit skin.
<b>Primary Eye Irritation</b>	Not irritating to rabbit eyes.
<b>Sensitization</b>	Not applicable

#### **Hydrochlorothiazide**

<b>LD50 Oral</b>	1175 mg/kg rats 2750 mg/kg mice
<b>Acute Dermal Irritation</b>	Not applicable
<b>Primary Eye Irritation</b>	Not applicable
<b>Sensitization</b>	Not applicable

### Multiple Dose Toxicity

#### **Bisoprolol Fumarate**

<b>No Toxicologic Effect Dose/Species/Study Length:</b>	See Carcinogenicity
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#### **Hydrochlorothiazide**

<b>No Toxicologic Effect Dose/Species/Study Length:</b>	See Carcinogenicity
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### Maximum Tolerated Dose (MTD), Oral

#### **Bisoprolol Fumarate**

<b>Carcinogenicity</b>	Long-term studies in rats and mice revealed no evidence of carcinogenicity.
<b>Genetic Toxicity</b>	No evidence of mutagenicity was observed in a battery of <i>in vitro</i> and <i>in vivo</i> assays.
<b>Reproductive Toxicity</b>	Studies in rats were found to have no effect on fertility.
<b>Developmental Toxicity</b>	No teratogenic effects were observed in rats and rabbits at doses up to 150 and 12.5 mg/kg/day respectively. In the rat, fetotoxicity was observed at 50 mg/kg/day and was maternotoxic at the highest dose. In the rabbit, fetal mortality was increased at the highest dose.

#### **Hydrochlorothiazide**

<b>Carcinogenicity</b>	Under the conditions of the National Toxicology Program (NTP) studies, there was no evidence of Carcinogenicity in rats or female mice. There was equivocal evidence of hepatocarcinogenicity in male mice.
<b>Genetic Toxicity</b>	Non genotoxic, based on a weight of evidence, but some assays have shown some activity. No evidence of mutagenicity was observed in a battery of <i>in vitro</i> and <i>in vivo</i> assays.
<b>Reproductive Toxicity</b>	Did not show reproductive toxicity effects in mice or rats.
<b>Developmental Toxicity</b>	No teratogenic effects were observed in mice and rats.
<b>Bisoprolol Fumarate</b>	
<b>Target Organ(s) of Toxicity</b>	No data available
<b>Hydrochlorothiazide</b>	
<b>Target Organ(s) of Toxicity</b>	No data available

## 12. ECOLOGICAL INFORMATION

The following effects are based on the Active Pharmaceutical Ingredient.

### Chemical Fate Information

<b>Bisoprolol Fumarate</b>	
<b>Mobility</b>	Not available
<b>Biodegradability</b>	Not readily biodegradable.
<b>Stability in Water</b>	Not available
<b>Bioaccumulation</b>	Not available

<b>Hydrochlorothiazide</b>	
<b>Mobility</b>	Not available
<b>Biodegradability</b>	Not available
<b>Stability in Water</b>	Not available
<b>Bioaccumulation</b>	Not available

### Ecotoxicity

<b>Bisoprolol Fumarate</b>	
<b>Microorganisms</b>	EC50/> 1000 mg/l (3hr)h/bacteria = mg/l
<b>Algae</b>	Not available
<b>Daphnia</b>	EC50/48h > 100 mg/l
<b>Fish</b>	LC50/96h/Danio Rerio > 100 mg/l

<b>Hydrochlorothiazide</b>	
<b>Microorganisms</b>	Not available
<b>Algae</b>	Not available
<b>Daphnia</b>	Not available
<b>Fish</b>	Not available

## 13. DISPOSAL CONSIDERATIONS

<b>Waste Disposal Method</b>	Dispose of in accordance with local and national regulations.
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## 14. TRANSPORT INFORMATION

**Transport Information** This material is not classified as hazardous for transport.

U.S. Department of Transport (DOT)	Not regulated
Canadian Transport of Dangerous Goods (TDG)	Not regulated
International Civil Aviation Organization (ICAO)	Not regulated
International Air Transport Association (IATA)	Not regulated
International Maritime Dangerous Goods (IMDG)/International Maritime Organization (IMO)	Not regulated
Transport of Dangerous Goods by Rail (RID)	Not regulated
Transport of Dangerous Goods by Road (ADR)	Not regulated
Transportation of Dangerous Goods via Inland Waterways (ADN)	Not regulated

## 15. REGULATORY INFORMATION

### USA

#### Federal Regulations

#### **OSHA Regulatory Status**

This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.

#### **SARA 311/312 Hazardous Categorization**

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

This product does not contain any HAPs.

#### State Regulations

#### **California Proposition 65**

This product does not contain any Proposition 65 chemicals

#### Canada

Not classified

#### **WHMIS Hazard Class**

Non-controlled

#### European Union

In accordance with EC directives or respective national laws, the product does not need to be classified nor labeled.

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**16. OTHER INFORMATION**

<b>Prepared By</b>	Wyeth Department of Environment, Health & Safety
<b>Format</b>	This MSDS was prepared in accordance with ANSI Z400.1-2004.
<b>List of References</b>	Product Profiles
<b>Revision Summary</b>	Changes to Section 8

## Disclaimer:

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**End of MSDS**