SAFETY DATA SHEET

1. Identification

Product identifier **Raloxifene hydrochloride**

Other means of identification

Catalog number 1598201

Chemical name Methanone, [6-hydroxy-2-(4-hydroxyphenyl)benzo[b]thien-3-yl]-[4-[2-(1-piperidinyl)ethoxy]phenyl]-, hydrochloride

Recommended use Specified quality tests and assay use only.

Recommended restrictions Not for use as a drug. Not for administration to humans or animals.

Manufacturer/Importer/Supplier/Distributor information

Company name U. S. Pharmacopeia

Address 12601 Twinbrook Parkway
Rockville
MD
20852-1790
US

Telephone RS Technical Services 301-816-8129

Website www.usp.org

E-mail RSTECH@usp.org

Emergency phone number CHEMTREC within US & Canada 1-800-424-9300
CHEMTREC outside US & Canada +1 703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Serious eye damage/eye irritation Category 2B
Reproductive toxicity Category 1

OSHA hazard(s) Not classified.

Label elements

Signal word Danger

Hazard statement Causes eye irritation. May damage fertility or the unborn child.

Precautionary statement

Prevention Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.

Response If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If exposed or concerned: Get medical advice/attention.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Raloxifene hydrochloride		82640-04-8	100

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Irritant effects. Cardiovascular effects.

Indication of immediate medical attention and special treatment needed Treatment of selective estrogen receptor modulator overdose should be symptomatic and supportive and may include the following:
1. Do NOT induce vomiting.
2. Administer activated charcoal as a slurry.
3. Perform gastric lavage soon after ingestion. Protect airway by placement in Trendelenburg and left lateral decubitus position or by endotracheal intubation. Control any seizures first.
4. Monitor vital signs frequently.
5. For seizures, administer intravenous diazepam or lorazepam. If seizures recur, consider phenobarbital. Monitor for hypotension, dysrhythmias, respiratory depression, and need for endotracheal intubation. Evaluate for hypoglycemia, electrolyte disturbances, and hypoxia.
6. For torsades de pointes in hemodynamically unstable patients, treat with cardioversion. In stable patients, treat with magnesium, isoproterenol, and/or atrial overdrive pacing. Correct electrolyte abnormalities. AVOID class Ia (quinidine, disopyramide, procainamide, aprindine) and most class III antidysrhythmics (N-acetylprocainamide, sotalol). [Meditext 2007]

General information Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials. Water. Foam. Dry chemical or CO2.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical No unusual fire or explosion hazards noted.

Special protective equipment and precautions for firefighters Wear suitable protective equipment.

Fire-fighting equipment/instructions Use water spray to cool unopened containers. As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Clean surface thoroughly to remove residual contamination.

7. Handling and storage

Precautions for safe handling As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Use of a designated area is recommended for handling of potent materials.

Conditions for safe storage, including any incompatibilities Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Exposure limit values

Industrial Use

Material	Type	Value
Raloxifene hydrochloride (CAS 82640-04-8)	STEL	130 micrograms/m3

Industrial Use

Material	Type	Value
	TWA	8 micrograms/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines No exposure standards allocated.

Appropriate engineering controls Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.

Skin protection

Hand protection Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy. To reduce the risk of contamination of skin and surfaces, wear two pairs of gloves. Remove the outer gloves after handling and cleanup of the material, and remove the inner gloves only after removing other personal protective equipment.

Other For handling of laboratory scale quantities, a disposable lab coat or isolation gown over street clothes is recommended. Where significant quantities are handled, work clothing and booties may be necessary to prevent take-home contamination.

Respiratory protection Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).

Thermal hazards Not available.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Off-white to pale yellow or greenish yellow powder.

Physical state Solid.

Form Powder.

Odor Slightly sulfurous odor.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 514.4 - 521.6 °F (268 - 272 °C) ; also reported as 258 °C

Initial boiling point and boiling range Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density Not available.

Solubility in water	Insoluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Chemical family	Benzothiopene derivative, nonsteroidal.
Molecular formula	C28H27NO4S . HCl
Molecular weight	510.04
Solubility (other)	Freely soluble in dimethylsulfoxide; sparingly soluble in methanol; slightly soluble in alcohol; very slightly soluble in isopropyl alcohol and octanol; practically insoluble in ether and ethyl acetate.

10. Stability and reactivity

Reactivity	No reactivity hazards known.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizers.
Hazardous decomposition products	NOx, SOx, Cl-. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Based on available data, the classification criteria are not met.
Inhalation	Due to lack of data the classification is not possible.
Skin contact	Due to lack of data the classification is not possible.
Eye contact	Causes eye irritation.
Symptoms related to the physical, chemical, and toxicological characteristics	Sensation of warmth. Swelling. Leg cramps. Joint pain. Rash. Flu symptoms. Fever. Sore throat. Blood in urine. Painful or difficult urination. Vaginal itching. Vaginal discharge. Breast pain. Weight gain. Difficulty sleeping. Depression. Difficulty breathing. Headache. Dizziness. Visual disturbances. Speech or language disturbances. Numbness, tingling, or burning sensations. Chest pain. Coughing blood. Blood in vomit. Black or bloody stools.
Delayed and immediate effects of exposure	Increase in blood pressure. Gastrointestinal ulceration. Endometrial polyps. Thrombocytopenia. Deep vein thrombosis. Embolism. Stroke. Heart attack.
Medical conditions aggravated by exposure	History of thrombosis. Heart problems. Active malignancy. Undiagnosed uterine bleeding. Kidney impairment. Impaired liver function.
Acute toxicity	Based on available data, the classification criteria are not met.

Product	Species	Test Results
Raloxifene hydrochloride (CAS 82640-04-8)		
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Causes eye irritation.

Local effects

Irritancy test
Result: Irritant.
Species: Rabbit
Organ: Eye
Severity: Slight
Irritancy test
Result: Non-irritant.
Species: Rabbit
Organ: Skin
Sensitization test
Result: Non-sensitizing.
Species: Guinea pig
Organ: Skin

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Due to lack of data the classification is not possible.
Data from germ cell mutagenicity tests were not found.

Mutagenicity

Ames test
Result: Negative.
Chromosomal aberration assay in Chinese hamster ovary cells
Result: Negative.
In vivo micronucleus test in mice
Result: Negative.
In vivo sister chromatid exchange assay in Chinese hamsters
Result: Negative.
Mouse lymphoma assay
Result: Negative.
Unscheduled DNA synthesis assay
Result: Negative.

Carcinogenicity Due to lack of data the classification is not possible.
This material is not considered to be a carcinogen by IARC, NTP, or OSHA.

41 - 210 mg/kg Dietary carcinogenicity study in male mice
Result: Increase in incidence of testicular interstitial cell tumors, and prostatic adenomas and adenocarcinomas.
Test Duration: 21 months
9 - 242 mg/kg Dietary carcinogenicity study in female mice
Result: Increase in incidence of benign and malignant tumors of granulosal and thecal cell origin, and benign tumors of epithelial cell origin.
Test Duration: 21 months
Dietary carcinogenicity study in rats
Result: Increase in incidence of ovarian tumors of granulosal and thecal cell origin at dosage of 279 mg/kg.
Test Duration: 2 years

Reproductive toxicity May damage fertility or the unborn child.

Reproductivity

0.1 - 10 mg/kg/day Reproductivity study in female rats
Result: Estrous cycles were reversibly disrupted, ovulation was inhibited, and embryo implantation was delayed/disrupted, resulting in prolonged gestation and a smaller litter size. No pregnancies occured at doses of 5 mg/kg or higher.
100 mg/kg Reproductivity study in male rats
Result: No negative effects observed on sperm production or quality of reproductive performance.
Test Duration: 2 weeks
Development study in rats
Result: Lymphoid compartment size reduction, growth reduction, and changes in pituitary hormone content observed at doses of 0.1 mg/kg and higher. Retardation of fetal development and developmental abnormalities occured at doses of 1 mg/kg and higher.
Reproductivity and development study in rabbits
Result: Increased incidence of fetal abortion and a low rate of fetal heart anomalies at doses 0.1 mg/kg and higher; and hydrocephaly at doses 10 mg/kg and higher.

Specific target organ toxicity - single exposure Due to lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure Due to lack of data the classification is not possible.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
Raloxifene hydrochloride (CAS 82640-04-8)			
Crustacea	EC50	Daphnia magna	2.43 mg/l, 48 hours

Product		Species	Test Results
Aquatic			
Algae	EC50	Green algae (Selenastrum capricornutum)	1.21 mg/l, 72 hours
Fish	LC50	Rainbow Trout	1.45 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Not available.

Hazardous waste code Not available.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Raloxifene hydrochloride)
Transport hazard class(es)	9
Subsidiary class(es)	Not available.
Packing group	III

IATA

UN number	UN3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Raloxifene hydrochloride)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packaging group	III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

DOT; IATA

15. Regulatory information

US federal regulations CERCLA/SARA Hazardous Substances - Not applicable.

One or more components are not listed on TSCA.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance	No
SARA 311/312 Hazardous chemical	No

Other federal regulations

Safe Drinking Water Act (SDWA)	Not regulated.
Food and Drug Administration (FDA)	Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date	03-15-2007
Revision date	11-18-2014
Version #	02
Further information	Not available.
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Revision Information	This document has undergone significant changes and should be reviewed in its entirety.