SAFETY DATA SHEET

Ropivacaine Hydrochloride Injection, USP 0.5% (5 mg/mL)

1. IDENTIFICATION

Product Identifier: Ropivacaine Hydrochloride Injection, USP 0.5% (5 mg/mL)

Synonyms: Ropivacaine Hydrochloride Injection; S-(-)-1-Propyl-2',6'-pipecoloxylidide hydrochloride monohydrate

National Drug Code (NDC): 17478-081-30

Recommended Use: Pharmaceutical. Ropivacaine Hydrochloride is indicated for the production of local or regional anesthesia for surgery and for acute pain management.

Company:
Akorn, Inc.
1925 West Field Court, Suite 300
Lake Forest, Illinois 60045

Contact Telephone: 1-800-932-5676

E mail: customer.service@akorn.com

Emergency Phone Number: CHEMTREC 1-800-424-9300 (U.S. and Canada)

2. HAZARD(S) IDENTIFICATION

Physical Hazards: Not classifiable.

Health Hazards:

Harmful if swallowed	Category 4
Specific Target Organ toxicity – Repeated Exposure	Category 2
Harmful to aquatic life with long lasting effects	Category 3

Symbol(s):

Signal Word: Warning.

Hazard Statement(s):

H302	Harmful if swallowed
H318	Causes serious eye damage
H373	May cause damage to organs through prolonged or repeated exposure
H412	Harmful to aquatic life with long lasting effects

Precautionary Statement(s):	P264	Wash hands thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazards Not Otherwise Classified:		Not classifiable.
Supplementary Information:		None.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Synonyms	CAS Number	Chemical Formula	Molecular Weight	Percentage
Ropivacaine Hydrochloride	S-(-)-1-Propyl-2',6'-pipecoloxylidide hydrochloride monohydrate	132112-35-7	$C_{17}H_{26}N_2O$•HCl •H_2O	328.89	0.5%
Sodium Chloride	Sodium Chloride	7647-14-5	NaCl	58.44	0.8%
Sodium Hydroxide	Sodium Hydroxide	1310-73-2	NaOH	39.997	*
Hydrochloric Acid	Hydrochloric Acid	7647-01-0	HCl	36.46	*

*to adjust pH

4. FIRST AID MEASURES

Ingestion:

If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth with water. If swallowed, seek medical advice immediately and show the container or label. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye Contact:

Remove from source of exposure. Flush with copious amounts of water for at least 15 minutes. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary. Ensure that medical personnel are aware of the material(s) involved and are aware of precautions to protect themselves.

Skin Contact:

Remove from source of exposure. Remove and isolate contaminated clothing and shoes. Flush with copious amounts of water for at least 20 minutes. Use soap. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary. Ensure that medical personnel are aware of the material(s) involved and are aware of precautions to protect themselves.

Inhalation:

Remove from source of exposure. Move individual(s) to fresh air. Give artificial respiration if individual(s) are not breathing and call emergency medical service. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary. Ensure that medical personnel are aware of the material(s) involved and are aware of precautions to protect themselves.

Protection of First-Aiders:

Use personal protective equipment (see section 8).

Signs and Symptoms:

Inadvertent contact with this product may cause irritation, followed by numbness. Ingestion may cause numbness of the tongue and anesthetic effects on the stomach. In clinical use, this product produces numbness when injected. Systemic absorption can produce central nervous system (CNS) stimulation and/or CNS depression. CNS depression may progress to coma and cardio-respiratory arrest. Signs of cardiovascular toxicity may include changes in cardiac conduction, excitability, refractoriness, contractility, and peripheral vascular resistance. Toxic blood levels may cause atrioventricular block, ventricular arrhythmias, cardiac arrest, and sometimes death. In addition, decreased cardiac output and arterial blood pressure may occur. Additional adverse effects have included fever, headaches, agitation, tingling of extremities, general hypotension, bradycardia, dizziness, nausea,

	vomiting, anemia, back pain, post-operative pain and fetal distress.
Medical Conditions Aggravated by Exposure:	As with all pharmaceuticals, hypersensitivity is possible.
Notes to Physician:	Treat supportively and symptomatically. Ropivacaine hydrochloride should be used with caution in patients receiving other local anesthetics or agents structurally related to amide-type local anesthetics, since the toxic effects of these drugs are additive. Patients treated with class III antiarrhythmic drugs (eg, amiodarone) should be under close surveillance and ECG monitoring considered, since cardiac effects may be additive.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media:	Use water, carbon dioxide, dry chemical or foam as necessary.
Unsuitable Extinguishing Media:	Not determined.

Specific Hazards Arising from the Chemical

Hazardous Combustion Products:	Not flammable or combustible.
Other Specific Hazards:	Closed containers may explode from the heat of fire.
Special Protective Equipment and Precautions for Firefighters:	Wear self-contained breathing apparatus and full and protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Use personal protective equipment recommended in Section 8 of this document and isolate the hazard area.
Personal Protective Equipment:	For personal protection see section 8.
Methods for Cleaning Up:	Absorb with inert material. Recover product and place in an appropriate container for disposal in accordance with local, state and federal regulations.
Environmental Precautions:	Contain material and prevent release to basements, confined spaces, waterways or soil.
Reference to Other Sections:	Refer to Sections 8, 12 and 13 for further information.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Handle in accordance with product label and/or product insert information. Handle in accordance with good industrial hygiene and safety practices.

Conditions for Safe Storage, Including Any Incompatibilities:

Store at 20° to 25°C (68° to 77°F) [see USP Controlled Room Temperature]. Do not use if solution is discolored or contains a precipitate. Store according to label and/or product insert information.

Specific End Use:

Pharmaceutical drug product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Guidelines:

Ingredient	Type	Value
Ropivacaine Hydrochloride	Not established	Not established

Engineering Controls:

Engineering controls should be used as the primary means to control exposures.

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).

Eyes Protection:

Use Safety glasses with side shields. 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.

Hand Protection:

Avoid contact with skin. Use 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 non-latex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.

Skin Protection:

Avoid contact with skin. Wear protective laboratory coat, apron, or disposable garment when working with large quantities.

General Hygiene Considerations:

Always observe good personal hygiene measures, such as washing after handling the material and before eating,

drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Color:	Clear, colorless aqueous solution.
Odor:	Odorless.
Odor Threshold:	No data available.
pH:	4.0 to 6.0.
Melting Point:	No data available.
Freezing Point:	No data available.
Boiling Point:	No data available.
Flash Point:	No data available.
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Lower:	No data available.
Flammability Limit - Upper:	No data available.
Vapor Pressure:	No data available.
Vapor Density:	No data available.
Relative Density:	1.002 to 1.005 at 25°C.
Solubility(ies):	At 25°C ropivacaine HCl has a solubility of 53.8 mg/mL in water. It is freely soluble in methanol and soluble in isopropanol.
Partition Coefficient (n-octanol/water):	14.1 at pH 7.4.
Auto-Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Viscosity:	No data available.

10. STABILITY AND REACTIVITY

Reactivity:	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	Stable under recommended storage conditions.
Possibility of Hazardous Reactions:	No data available.
Conditions to Avoid (e.g., static discharge, shock, or vibration):	Contact with incompatible materials.
Incompatible Materials:	No data available. This product is a mixture that has not been tested as a whole.
Hazardous Decomposition Products:	During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of carbon oxides (COx), nitrogen oxides (NOx), and hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Information on the Likely Routes of Exposure

Inhalation: May cause respiratory irritation.

Ingestion: Harmful if swallowed.

Skin Contact: May cause skin irritation.

Eye Contact: Causes serious eye damage.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: See Section 4. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Delayed and Immediate Effects of Exposure: Chronic effects are unlikely. Repeated and/or prolonged contact may cause irritation.

Acute Toxicity

Not fully established. This product is a mixture that has not been fully tested as a whole. Information provided herein is derived from the approved product insert and/or supplier SDS for active ingredients.

Ingredient	Species	Route	Test Type	Dosage
Ropivacaine Hydrochloride	Rat	Oral	LD_{50}	56 mg/kg

Irritation / Sensitization

Ingredient	Study Type	Species	Severity
No data available	No data available	No data available	No data available

Repeated Does Toxicity

Ingredient	Duration	Species	Route	Dosage	Test Type	Target Organ
No data available	No data available	No data available	No data available	No data available	No data available	No data available

Reproduction and Developmental Toxicity

Ingredient	Study Type	Species	Route	Dosage	Test Type	Effect(s)
No data available	No data available	No data available	No data available	No data available	No data available	No data available

Genetic Toxicity

Ingredient	Study Type	Cell Type / Organism	Result
No data available	No data available	No data available	No data available

Aspiration Hazard: None anticipated from normal handling of this product.

Toxicokinetics/Metabolism: No data available.

Target Organ Effects: Based on clinical use, possible target organs include the nervous system, cardiovascular system, and skin.

Reproductive Effects: Pregnancy Category B. Studies conducted with Ropivacaine in rats did not demonstrate an effect on fertility or general reproductive performance over 2 generations.

Ropivacaine was administered subcutaneously to rabbits on gestation days 6-18 at dosages of 1.3, 4.2, or 13 mg/kg/day. Similarly, Ropivacaine was given subcutaneously to rats on gestation days 6-15 at dosages of 5.3, 11 and 26 mg/kg/day. No teratogenic effects were observed in rats or rabbits at the highest dosages tested.

In two pre-natal and post-natal studies, female rats were treated daily from day 15 of gestation to day 20 postpartum with subcutaneous dosages of 5.3, 11 and 26 mg/kg/day. There were no treatment-related effects on late fetal development, parturition, lactation, neonatal viability, or growth of the offspring.

In another study, male rats were dosed daily for 9 weeks before mating and during mating. Females were dosed daily for 2 weeks before mating and then during the mating, pregnancy, and lactation, up to day 42 post coitus. At a dosage of 23 mg/kg/day, an increased loss of pups was observed during the first 3 days postpartum. The finding was considered secondary to impaired maternal care due to maternal toxicity.

Carcinogenicity: Long term studies in animals of most local anesthetics, including Ropivacaine, to evaluate the carcinogenic potential have not been conducted.

National Toxicology Program (NTP): Not considered to be a carcinogen.

International Agency for Research on Cancer (IARC): Not considered to be a carcinogen.

Occupational Safety and Health Administration (OSHA): Not considered to be a carcinogen.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Ingredient	Species	Test Type	Dosage	Duration
Ropivacaine Hydrochloride	Green algae	EC_{50}	59 mg/l	72 hours
	Daphnia magna	EC_{50}	34 mg/l	48 hours
	Zebra fish	EC_{50}	38 mg/l	96 hours
	Microtox test	EC_{50}	>1,000 mg/l	15 minutes

Terrestrial Toxicity: No data available.
Persistence and Degradability: Not rapidly biodegradable.
Bioaccumulative Potential: The substance has low potential for bioaccumulation.
Mobility in Soil: No data available.
Mobility in Environment: No data available.
Other Adverse Effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose of all waste in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

Department of Transportation (DOT): Not regulated as a hazardous material.

UN Proper Shipping Name	UN Number	Transport Hazard Class	Packing Group
Not applicable	Not applicable	Not Applicable	Not applicable

International Air Transport Association (IATA): Not regulated as a dangerous good.

UN Proper Shipping Name	UN Number	Transport Hazard Class	Packing Group
Not applicable	Not applicable	Not Applicable	Not applicable

International Maritime Dangerous Good (IMDG): Not regulated as a dangerous good.

UN Proper Shipping Name	UN Number	Transport Hazard Class	Packing Group
Not applicable	Not applicable	Not Applicable	Not applicable

15. REGULATORY INFORMATION

US FEDERAL REGULATIONS

Toxic Substance Control Act (TSCA):

Ingredient	Inventory
Ropivacaine Hydrochloride	No

CERCLA Hazardous Substance:

Ingredient	Reportable Quantity
Not applicable	Not applicable

EPCRA Extremely Hazardous Substances and Toxic Chemicals:

Ingredient	Section 302	Section 313
Not applicable	Not applicable	Not applicable

U.S. STATE RIGHT-TO-KNOW REGULATIONS

Ingredient	New Jersey	Pennsylvania	Massachusetts
Ropivacaine Hydrochloride	Not Listed	Not Listed	Not Listed

California Proposition 65: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

See footer of this document for Revision Date and Revision Number.

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