# SAFETY DATA SHEETS

## This SDS packet was issued with item:

078507041

N/A

79548

Rhodes PHARMACEUTICALS

# MSDS – Material Safety Data Sheet

**Hydromorphone Hydrochloride Tablets (2, 4, 8 mg)** | **Version: 23-JAN-11**

## 1. CHEMICAL PRODUCT / COMPANY INFORMATION

**Company Identification:**


**Rhodes Pharmaceuticals L.P.**
**498 Washington Street**
**Coventry, RI 02816**
**Phone: 401-262-9400**
**Fax: 401-262-9401**


**EMERGENCY CONTACT**
**Emergency Telephone #: CHEMTREC (800) 424-9300.**
**For all international transportation emergencies call CHEMTREC collect at (703) 527-3887**

**Product Use: Opioid Analgesic**

**Chemical Name: Mixture, not applicable**

**Active Ingredient: 4, 5α-epoxy-3-hydroxy-17 methylmorphinan-6-one hydrochloride**

**Synonyms: Dihydromorphinone hydrochloride**

**Molecular Formula: (Active Ingredient) $C_{17}H_{19}NO_3 \cdot HCl$**

**Molecular Weight: (Active Ingredient) 321.80**

## 2. Ingredients:

| CAS No. | Chemical Name | % Range | OEG* | SARA 313 | OSHA PEL | ACGIH TLV |
|---|---|---|---|---|---|---|
| 71-68-1 | Hydromorphone hydrochloride (2 mg) | 2.3 | 10 μg/m3 | NA | NA | NA |
| 71-68-1 | Hydromorphone hydrochloride (4 mg) | 4.4 | 10 μg/m3 | NA | NA | NA |
| 71-68-1 | Hydromorphone hydrochloride (8 mg) | 5.3 | 10 μg/m3 | NA | NA | NA |

*Occupational Exposure Guideline (8-hr TWA)

## 3. Hazardous Identification:

**Hazard Category:**

| | | | | |
|---|---|---|---|---|
| ☑ Acute | ☑ Chronic | ☐ Fire | ☐ Pressure | ☐ Reactive |

**Emergency Overview**

Hydromorphone tablets do not pose a significant workplace hazard unless tablets are broken or crushed. The following information for hydromorphone is provided for those circumstances where uncontrolled exposure to hydromorphone may occur due to breakage or crushing of the Hydromorphone tablet.

Orange (2 mg), yellow (4 mg), white (8 mg) dust may result from crushed tablets.
May be fatal if ingested.
Harmful by inhalation.
Harmful by skin contact.

May cause skin and eye irritation.
May cause skin and respiratory allergies.
Causes pinpoint pupils.

Target organs: central nervous system, gastrointestinal tract, cardiovascular system.

Serious overdose produces respiratory depression, extreme somnolence, stupor or coma, skeletal muscle flaccidity, cold and clammy skin, bradycardia and hypotension.

Severe overdose produces apnea, circulatory collapse, cardiac arrest and death.
Hazardous Identification Information:

**Potential Health Effects:**

Hydromorphone hydrochloride is an orally active opioid analgesic with potency approximately 8 times that of morphine.

Hydromorphone hydrochloride may cause eye irritation and mild skin irritation.

Repetitive exposure to hydromorphone hydrochloride may cause skin and/or respiratory allergies. Hydromorphone hydrochloride may be absorbed through the skin.

Overdose may cause dizziness, euphoria, flushing, itching, hypotension, pinpoint pupils, nausea/vomiting, constipation and reduced urination.

Serious overdose produces respiratory depression, extreme somnolence, stupor or coma, skeletal muscle flaccidity, cold and clammy skin, bradycardia and hypotension.
Severe overdose produces apnea, circulatory collapse, cardiac arrest and death.

Maternal exposure to hydromorphone hydrochloride during pregnancy may cause respiratory depression in the neonate. Repeated maternal exposure to hydromorphone hydrochloride during pregnancy may produce respiratory depression and/or withdrawal in the neonate.

Conditions that may be aggravated by exposure include significant chronic obstructive lung disease, asthma and hypotension.

**Carcinogenicity Information:**

Hydromorphone hydrochloride is not listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

## 4. First Aid Measures:

**Emergency and First Aid Procedures:**

Inhalation: If dusts are inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician (see notes to physician below). If allergic reactions occur (e.g., stuffy, runny or itchy nose, itchy throat, sneezing, watery/itchy eyes, etc.) see a physician.

Ingestion: If swallowed, immediately give 2 glasses of water and induce vomiting under the direction of medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

Skin Contact: Remove contaminated clothing. Flush skin with plenty of water and wash thoroughly with soap and water. If irritation (redness, itching, swelling) develops seek medical attention. Wash contaminated

clothing before reuse.

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. See a physician.

**Notes to Physicians:**

Hydromorphone hydrochloride is a pure opioid agonist with an analgesic potency about 8 times that of morphine. Naloxone is a specific antidote against respiratory depression from opioid overdose. Opioid antagonists should not be administered in the absence of clinically significant respiratory or circulatory depression secondary to hydromorphone overdose.

In cases of overdose, primary attention should be given to the re-establishment of a patent airway and institution of assisted or controlled ventilation. Supportive measures (including oxygen and vasopressors) should be employed in the management of circulatory shock and pulmonary edema accompanying overdose as indicated. Cardiac arrest or arrhythmias may require cardiac massage or defibrillation.

If ingested and the patient is conscious, induction of emesis may be indicated.
Gastric lavage may be indicated if the patient is unconscious

## 5. Fire Fighting Measures:

**Flash Point:** NA **Lower Explosive Limit:** NA **Upper Explosive Limit:** NA

**Flammable Properties:**

Hydromorphone hydrochloride is not considered flammable. However, concentrated dust from broken or crushed tablets may pose a dust explosion hazard. Eliminate sources of ignition. Bond and ground as necessary. Use non-sparking tools.

**Fire Extinguishing Media:**

Water spray, carbon dioxide, dry chemical powder, or foam as appropriate for the surrounding material.

**Special Fire Fighting Procedures:**

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire.
Wear self-contained breathing apparatus. Wear full protective equipment.

## 6. Accidental Release Measures:

**Safeguards (Personnel):**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up to minimize exposure to this material. Evacuate personnel from the area.

**Initial Containment:**

Prevent material from entering sewers, waterways, or low areas. Dike area for later disposal.

**Spill Clean-up:**

Hydromorphone hydrochloride is a Schedule II controlled substance. Wear suitable protective clothing and equipment. Sweep up intact tablets or vacuum up broken or crushed tablets and place collected material into a suitable container for reclamation or disposal. Thoroughly wash area with detergent and water. All clean up operations should be witnessed by more than one individual. The amount of material collected should be assessed and documented. Dispose of all solid waste and wash and rinse water in accordance with federal, state, and local regulations.

Dust Deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

## 7. Handling and Storage:

**Handling (Personnel):**

Minimize dust generation and accumulation.

Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.

Avoid procedures that will generate dust. Local exhaust is recommended to avoid generation of significant airborne dust levels. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash contaminated clothing after use.

**Handling (Physical Aspects):**

Close container after each use. Do not generate dust.

**Storage:**

Hydromorphone hydrochloride is a Schedule II controlled substance. Keep containers tightly closed. Protect from light. To maintain potency, store at 25°C (77°F) and control temperature excursions to between 15-30°C (59-86°F).

## 8. Exposure Controls/Personal Protection:

**Engineering Controls:**

Handle material under adequate ventilation. Keep container tightly closed.

**Dust-handling systems:**

Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

**Electrical equipment:**

Use only appropriately classified electrical equipment and powered industrial trucks.

**Personal Protective Equipment:**

Wear safety glasses with side shields if exposure to dust is possible. Wear full-face protection when judged that the possibility exists for eye and face contact. Wear impervious clothing such as gloves, lab coat, shoe covers, apron, or jumpsuit, as appropriate, to prevent skin exposure to broken or crushed tablets, powder, and dust. Consult the site safety professional for additional guidance, as needed.

**Exposure Guidelines**

**Exposure Limits:**

Hydromorphone hydrochloride
PEL (OSHA): None established.
TLV (ACGIH): None established.
Occupational Exposure Guideline): 10 $\mu$g/m3 (hydromorphone free base)

**Exposure Guideline Comments:**

May be absorbed through skin; may cause skin or respiratory sensitization.

## 9. Physical and Chemical Properties:

**Boiling Point:** NA **Melting Point:** 305-315 deg C (decomposes; Hydromorphone HCl). **Evaporation Rate:** NA

**Vapor Pressure:** NA **Vapor Density (AIR =1):** NA

**Solubility In Water:**

1 in 3 parts of water.

**Appearance and Odor:**

Dust from crushed tablets will be orange (2 mg), yellow (4 mg) or white (8 mg).powder (solid) odorless

**Other Information:**

pKa: (25 °C): 8.1

## 10. Stability and Reactivity:

**Stability:**

Low stability hazard expected at normal operating temperatures.

**Incompatibility (Materials to Avoid):**

Strong oxidizers, acids, bases
Oxidizing materials will increase the risk or fire and explosion (e.g., potassium perchlorate, potassium nitrate).

**Conditions to Avoid:**

Static charge, sparks, generation of dust, and temperatures above 200°C.

**Decomposition/By Products:**

Will not decompose under conditions of usual handling.

**Hazardous Polymerization:**

Material will not polymerize.

## 11. Toxicological Information:

**Relevant Data:**

Except where otherwise noted, the following data for hydromorphone hydrochloride are reflected as hydromorphone free base.

**Skin/Eyes:**

Hydromorphone hydrochloride has not been evaluated in skin and eye irritation studies in animals. It is expected that hydromorphone hydrochloride may produce mild skin irritation and may cause eye irritation.

**Acute:**

Hydromorphone hydrochloride
$LD_{50}$: IV: 55 mg/kg (mouse).
LDL: IV: 51 mg/kg (rat).
Approximate Lethal Dose: oral: 500 mg/kg (female rat).
Approximate Lethal Dose: oral: 175 mg/kg (female rabbit).

**Subchronic:**

Hydromorphone
In a 12-day oral range finding study in female rats with hydromorphone, mortality was observed at each of the dosages tested (50-200 mg/kg/day) within the first six days of treatment. Abnormalities observed after dosing included reduced activity, in coordination, rigidity, focused gaze, unresponsiveness to external stimuli, increased heart rate and decreased body weight. Microscopic evaluation of tissues from animals in the study was not performed.

In a 30-day oral range finding study in male and female rats with hydromorphone, 50 mg/kg/day (highest dosage tested) produced mortality. At 1,5,20, and 50 mg/kg/day hydromorphone reduced food consumption and body weight (5, 20, 50 mg/kg/day groups) and produced stereotypic effects such as increased/decreased activity, impaired righting reflex, clonic convulsion, excessive salivation, etc. in a dose-and time-dependent manner. The number of estrous stages in female rats in the 20 and 50 mg/kg/day groups was reduced in the 30-day study and consecutive days of diestrus were increased in female rats in the 50 mg/kg/day group. Microscopic evaluation of tissues from animals in the study was not performed.

In a 13-day oral range finding study in female rabbits with hydromorphone, 100 mg/kg/day (highest dosage tested) produced reduced activity and muscle tone, recumbency and mortality during the first three days of treatment; no mortality, but similar effects were observed in rabbits that received 50 mg/kg/day. No treatment-related effects were observed in female rabbits that received 25 mg/kg/day.

Microscopic evaluation of tissues from animals in the study was not performed.

**Chronic Toxicity:**

Hydromorphone
No information available.

**Carcinogenicity:**

Hydromorphone
No information available.

**Mutagenicity/Genotoxicity:**

Hydromorphone hydrochloride
Bacterial mutagenicity: negative.
Mouse micronucleus: negative.
Mouse lymphoma: positive.

**Developmental/Reproductive Toxicity:**

Hydromorphone
Oral administration of hydromorphone had no effect on reproductive performance of male or female rats at dosages as high as 5 mg/kg/day. Hydromorphone was not teratogenic in rats treated orally with as high as 10 mg/kg/day or in rabbits treated with as high as 50 mg/kg/day. In a separate study, hydromorphone administered orally at dosages of 2 and 5 mg/kg/day to pregnant rats over the last third of the gestation period to the weaning of pups produced an increased incidence of peri/postnatal pup deaths and reduced pup body weight. These effects were not observed at a dosage of 0.5 mg/kg/day.

In early studies in the literature, hydromorphone had been reported to be teratogenic in hamsters (20 mg/kg, subcutaneous) and in mice (5 mg/kg, subcutaneous infusion). However, in these studies profound sedation and hypoxia/hypercarbia in the pregnant animals is believed to be the cause of the teratogenic effects, not the direct effect of hydromorphone on the fetus.

Repetitive maternal exposure to opioids has been associated with respiratory depression and/or withdrawal symptoms in neonates.

Although testing has not been conducted to determine if hydromorphone is present in breast milk, other opioids have been found in breast milk and it is expected hydromorphone will be present in breast milk of women treated with hydromorphone.

## 12. Ecological Information:

**Ecotoxicological Information:**

Hydromorphone hydrochloride
No information available.

**Chemical Fate Information:**

Hydromorphone hydrochloride
No information available.

## 13. Disposal Considerations:

**Disposal:**

This material is not listed under US RCRA. It is a Schedule II drug. Disposal of this material must be in accordance with federal, state/provincial, and local regulations.

## 14. Transport Information:

**Shipping Information:**

This material is non-hazardous under US DOT.

## 15. Regulatory Information:

**US Federal:**

Hydromorphone hydrochloride preparations are subject to control under the US Federal Controlled Substances Act of 1970 as schedule II (C-II) drugs.

## 16. Other Information:

**Other Precautions and Comments:**

The information contained in this Material Safety Data Sheet is believed to be accurate and represents the best information available at the time of preparation. However, no warranty, express or implied, with respect to such information, is made. The data in this Material Safety Data Sheet relate only to the specific material designated herein and does not relate to use in combination with any other material. The data in this Material Safety Data Sheet are subject to revision as additional knowledge and experience are gained.