

## Doxorubicin HCl

**Cat#: orb340472 (MSDS)**

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Doxorubicin.HCl

**RESTRICTIONS ON USE:** For laboratory research purposes. Not for drug or household use.

### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Description	Volume	Safety Information
Doxorubicin.HCl	Solid	5 mg	See below

### SECTION 3: HAZARDS IDENTIFICATION

Product Name/Chemical Name	CAS Number	EC-No.	MW	Chemical Formula	Concentration
Doxorubicin.HCl	25316-40-9	246-818-3	579.98	C <sub>27</sub> H <sub>29</sub> NO <sub>11</sub> · HCl	100%

**Doxorubicin.HCl:**

#### Emergency Overview

**OSHA Hazards:** Target organ effect, Harmful by ingestion, Irritant, Carcinogen

**Target Organs:** Heart, bone marrow, blood, liver

**GHS Classification:** Acute toxicity, Oral (Category 4), H302

Germ cell mutagenicity (Category 1B), H340

Carcinogenicity (Category 1B), H350

Reproductive toxicity (Category 1B), H360

#### GHS Label elements, including precautionary statements



Pictogram:

Signal word: Danger

Hazard statement(s):

H302 Harmful if swallowed.

H350 May cause cancer.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

**Precautionary statement(s):**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**

- Health hazard:** 2
- Chronic health hazard:** \*
- Flammability:** 0
- Physical hazards:** 0

**NFPA Rating**

- Health Hazard:** 2
- Fire:** 0
- Reactivity Hazard:** 0

**Potential Health Effects**

- Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- Skin:** Harmful if absorbed through skin. Causes skin irritation.
- Eyes:** Causes eye irritation.
- Ingestion:** Harmful if swallowed.

**SECTION 4: FIRST AID MEASURES**

- General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
- If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.
- In case of eye contact:** Flush eyes with water as a precaution.
- If swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5: FIRE-FIGHTING MEASURES**

- Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions— carbon oxides, nitrogen oxides, hydrogen chloride gas.

**Condition of flammability:** Not flammable or combustible.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up:** Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

## SECTION 7: HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: +4 °C

Moisture sensitive. Light sensitive.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Property Doxorubicin.HCl

**Appearance:** Orange-red powder

**pH:** No data available

**Water Solubility:** No data available

**Specific Gravity (g/ml):** No data available

**Boiling Point (°C):** No data available

**Melting Point (°C):** 216 oC (421 oF)

**Flash Point (°C):** No data available

**Ignition Temperature (°C):** No data available

**Density** No data available

## SECTION 10: STABILITY AND REACTIVITY

### Property Doxorubicin.HCl

**Chemical stability** Stable under recommended storage conditions

**Conditions to avoid:** Light. Exposure to moisture

**Materials to avoid:** Strong oxidizing agents

**Hazardous decomposition products:** Carbon oxides, nitrogen oxides, hydrogen chloride gas

## SECTION 11: TOXICOLOGICAL INFORMATION

### Doxorubicin.HCl:

**Acute toxicity:** LD50 Oral - Mouse - 570 mg/kg

**Serious eye damage/eye irritation:** no data available

**Respiratory or skin sensitization:** no data available

### Germ cell mutagenicity:

May cause genetic defects. Ames test

Salmonella typhimurium Result: positive (Lit.) Ames test Escherichia coli Result: negative (Lit.) sister chromatid exchange assay Human lymphocytes Result: positive (Lit.) Mouse lymphoma test Result: positive (Lit.)

Mutagenicity (mammal cell test): chromosome aberration.

Chinese hamster ovary cells Result: positive (Lit.) Rat - male and female - Bone marrow Result: positive (Lit.)

Mouse - male - Red blood cells (erythrocytes) Result: Positive results were obtained in some in vivo tests. (Lit.)

Mouse Result: positive (External MSDS)

### Carcinogenicity:

Presumed to have carcinogenic potential for humans

IARC: No component of the product present at levels greater than or equal to 0.1% is identified as probable, or possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** May damage the unborn child. May damage fertility.

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:** no data available

### Potential Health Effects

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** Harmful if absorbed through skin. May cause skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Harmful if swallowed.

**Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional information:** RTECS: Q19295900

### SECTION 12: ECOLOGICAL INFORMATION

#### Doxorubicin.HCl:

**Persistence and degradability:** no data available

**Toxicity:** no data available

**Bioaccumulative potential:** no data available

**Mobility in soil:** no data available

**PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects:** no data available

### SECTION 13: DISPOSAL CONSIDERATIONS

**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging:** Dispose of as unused product.

### SECTION 14: TRANSPORT INFORMATION

#### Doxorubicin.HCl:

**DOT (US):** Not dangerous goods.

**IMDG:** Not dangerous goods.

**IATA:** Not dangerous goods.

## SECTION 15: REGULATORY INFORMATION

### Doxorubicin.HCl:

**OSHA Hazards:** Target organ effect, Harmful by ingestion, Irritant, Carcinogen

**SARA 302 Components:** SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:** Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components:** No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components:** Doxorubicin hydrochloride, CAS-No. 25316-40-9

**New Jersey Right To Know Components:** Doxorubicin hydrochloride, CAS-No. 25316-40-9

### EU regulations

Component	Risk Phrases	Safety Phrases
Doxorubicin.HCl	R22, R37/38, R41, R45/46, R62/63	S26, S36/37, S39, S45, S53