

**Order
Number**

**Customer
Number**

1. Identification of the substance/preparation and of the company/undertaking

Product name : Daunorubicin, Hydrochloride **Catalog #** : 251800
Supplier : Manufactured by EMD Biosciences, Inc.
 10394 Pacific Center Court
 San Diego, CA 92121
 (858)450-5558/(800)854-3417
 FAX: (858)453-3552

Chemical formula : C₂₇H₂₉NO₁₀ · HCl

Synonym : Daunomycin, HCl

Emergency telephone number : **Call Chemtrec®**
 (800)424-9300 (within U.S.A.)
 (703)527-3887 (outside U.S.A.)

2. Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
1) Daunomycin, HCl	23541-50-6	245-723-4	Xn	R22

3. Hazards identification

Physical/chemical hazards : Not applicable.

Human health hazards : CAUTION!
 BIRTH DEFECT HAZARD
 CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECT.
 MAY BE HARMFUL IF SWALLOWED.
 MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: REPRODUCTIVE SYSTEM.

4. First-aid measures

First-Aid measures

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin Contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Eye Contact : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Effects and symptoms

Ingestion : Hazardous in case of ingestion.

Aggravating conditions : Repeated or prolonged exposure is not known to aggravate medical condition.

5. Fire-fighting measures

Flammability of the Product : May be combustible at high temperature.

Extinguishing Media

Suitable : SMALL FIRE: Use DRY chemical powder.
 LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Hazardous thermal (de)composition products : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds.

Special fire-fighting procedures : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters : Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Small Spill and Leak** : Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- Large Spill and Leak** : Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system

7. Handling and storage

- Handling** : Keep locked up. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 20°C (68°F).
- Packaging materials**
- Recommended use** : Use original container.

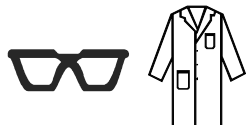
8. Exposure controls/personal protection

- Engineering measures** : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
1) Daunorubicin, Hydrochloride	Not available.

Personal protective equipment

- Respiratory system** : Wear appropriate respirator when ventilation is inadequate.
- Skin and body** : Lab coat.
- Eyes** : Safety glasses.
- Protective Clothing (Pictograms)** :



9. Physical and chemical properties

- Physical state** : Solid. (Crystalline solid.)
- Color** : Red.
- Molecular Weight** : 564 g/mole
- Melting Point** : 188 to 190°C (370.4 to 374°F)
- Solubility** : Easily soluble in cold water.
- Flash point** : Not available.
- Explosive properties** : Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

10. Stability and reactivity

- Stability** : The product is stable.
- Conditions to avoid** : Not available.
- Hazardous Decomposition Products** : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds.

11. Toxicological information

RTECS # : **HB7878000**

Local effects

Skin irritation : Not available.

Acute toxicity : LD50: Not available.
LC50: Not available.

Chronic toxicity : Repeated or prolonged exposure is not known to aggravate medical condition.

Other Toxic Effects on Humans : Not available.
Hazardous in case of ingestion.

Not available.

Not available.

Specific effects

Carcinogenic effects : Not available.

Mutagenic effects : Not available.

Reproduction toxicity : Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED].

Teratogenic effects : Not available.

12. Ecological information

Ecotoxicity : Not available.

Toxicity of the Products of Biodegradation : The products of degradation are less toxic than the product itself.

13. Disposal considerations

Methods of disposal; Waste of residues; Contaminated packaging : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport information

International transport regulations

Land - Road/Railway

ADR/RID Class : Not controlled under ADR (Europe).

Sea

IMDG Class : Not controlled under IMDG.

Air

IATA-DGR Class : Not controlled under IATA.

Special Provisions for Transport : Not applicable.

15. Regulatory information

EU Regulations

Hazard symbol(s) :



Classification : Harmful

Risk Phrases : R22- Harmful if swallowed.

Safety Phrases :

Contains : - Daunorubicin, Hydrochloride

U.S. Federal Regulations

: TSCA: No products were found.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Daunorubicin, Hydrochloride

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Daunorubicin, Hydrochloride: immediate health hazard, delayed health hazard

SARA 313 toxic chemical notification and release reporting: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.
 Clean air act (CAA) 112 accidental release prevention: No products were found.
 Clean air act (CAA) 112 regulated flammable substances: No products were found.
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

HCS Classification

- : CLASS: Toxic.
- CLASS: Target organ effects.
- CLASS: Reproductive toxins.

State Regulations

- : California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Daunorubicin, Hydrochloride

WHMIS (Canada)

- : CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
- CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
- No products were found.

16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	2
Fire Hazard		1
Reactivity		0
Personal Protection		a

National Fire Protection Association (U.S.A.)



Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Date of issue

Catalog # 251800

3/18/2003.

Page: 4/4