

## Chemical Safety Data Sheet MSDS / SDS

## Daunorubicin

Revision Date:2024-12-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : Daunorubicin  
CBnumber : CB0338996  
CAS : 20830-81-3  
EINECS Number : 244-069-7  
Synonyms : daunorubicin,daunomycin

## Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Acute toxicity - Category 3, Oral  
Germ cell mutagenicity, Category 2  
Carcinogenicity, Category 2  
Reproductive toxicity, Category 2

## Label elements

## Pictogram(s)

Signal word : Danger

## Hazard statement(s)

H301 Toxic if swallowed  
H341 Suspected of causing genetic defects  
H351 Suspected of causing cancer  
H361 Suspected of damaging fertility or the unborn child

## Precautionary statement(s)

### Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P203 Obtain, read and follow all safety instructions before use.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

### Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P318 IF exposed or concerned, get medical advice.

### Storage

P405 Store locked up.

### Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### Other hazards

no data available

---

## SECTION 3: Composition/information on ingredients

### Substance

Product name	: Daunorubicin
Synonyms	: daunorubicin,daunomycin
CAS	: 20830-81-3
EC number	: 244-069-7
MF	: C27H29NO10
MW	: 527.52

---

## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately.

Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control

Center immediately.

### **Most important symptoms and effects, both acute and delayed**

no data available

### **Indication of any immediate medical attention and special treatment needed**

Four adult patients who suffered anthracycline extravasation ... were treated with a regimen of ice, local glucocorticoid injection, and dimethylsulfoxide (DMSO) 55%-99% applied topically every 2-4 hr after extravasation for a minimum of 3 days. In all four cases, pain and erythema resolved within 2 days; in no case did tissue necrosis or skin ulceration occur. Anthracycline

---

## **SECTION 5: Firefighting measures**

### **Extinguishing media**

Use dry chemical, carbon dioxide or alcohol-resistant foam.

### **Specific Hazards Arising from the Chemical**

no data available

### **Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

---

## **SECTION 6: Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **Environmental precautions**

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### **Methods and materials for containment and cleaning up**

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

---

## **SECTION 7: Handling and storage**

## Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

## Conditions for safe storage, including any incompatibilities

PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemicophysical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

---

# SECTION 8: Exposure controls/personal protection

## Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

## Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## Individual protection measures

### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

---

# SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

Physical state	Anthracycline antibiotic. An anticancer agent.
Colour	Reddish needles
Odour	no data available
Melting point/freezing point	155°C
Boiling point or initial boiling point and	769.977°C at 760 mmHg

boiling range	
Flammability	no data available
Lower and upper explosion	no data available
limit/flammability limit	
Flash point	419.467°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	no data available
Partition coefficient n-octanol/water	no data available
Vapour pressure	9.4X10 <sup>-15</sup> mm Hg at 25 deg C
Density and/or relative density	1.554 g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

No rapid reaction with air. No rapid reaction with water.

### Chemical stability

Aseptic technique must be strictly observed in all handling, since no preservative or bacteriostatic agent is present in DaunoXome or in the materials recommended for dilution.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Incompatible materials

Caution: The only fluid which may be mixed with DaunoXome is D5W; DaunoXome must not be mixed with saline, bacteriostatic agents such as benzyl alcohol, or any other solution.

### Hazardous decomposition products

no data available

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Mouse oral 105 mg /kg

- Inhalation: no data available
- Dermal: no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

The Human Health Assessment Group in EPA's Office of Health and Environmental Assessment has evaluated daunorubicin for carcinogenicity. According to their analysis, the weight-of-evidence for daunorubicin is group B2, which is based on sufficient evidence in animals. No data is available in humans. As a group B2 chemical, daunorubicin is considered probably carcinogenic to humans.

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

---

## SECTION 12: Ecological information

**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

### **Mobility in soil**

no data available

### **Other adverse effects**

no data available

---

## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

---

## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: UN3249 (For reference only, please check.)

IMDG: UN3249 (For reference only, please check.)

IATA: UN3249 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: MEDICINE, SOLID, TOXIC, N.O.S. (For reference only, please check.)

IMDG: MEDICINE, SOLID, TOXIC, N.O.S. (For reference only, please check.)

IATA: MEDICINE, SOLID, TOXIC, N.O.S. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

### **Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

---

## **SECTION 15: Regulatory information**

### **Safety, health and environmental regulations specific for the product in question**

#### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

#### **EC Inventory**

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Not Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Not Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

Listed.

---

## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%



EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.