TCI EUROPE N.V.

SAFETY DATA SHEET

According to 1907/2006/EC, Article 31

Revision number: 2 **Revision date:** 04/11/2019

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

1.1 Product identifiers

Product name: Daunorubicin Hydrochloride
Product code: D4532

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

Identified uses: Reagents.

1.3 Details of the supplier of the safety data sheet

Supplier:

TCI EUROPE N.V.
Boerenveldseweg 6
Haven 1063
B-2070 Zwijndrecht
Telephone: +32(0)3 735 07 00
E-mail: sales-eu@tcichemicals.com

1.4 Emergency telephone number: +32(0)70 245 245

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Acute toxicity (Oral)	Category 3
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 2

2.2 Label elements

Pictograms or hazard symbols

Signal word Danger

Hazard statements
H301-Toxic if swallowed.
H334-May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317-May cause an allergic skin reaction.
H351-Suspected of causing cancer.

Precautionary statements
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.
P284-Wear respiratory protection.
P280-Wear protective gloves, protective clothing, face protection.
P301+P310+P330-IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth.
P302+P352+P333+P313+P362+P364-IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Take off contaminated clothing. And wash it before reuse.
P304+P340+P342+P311-IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable
vPvB: Not applicable

SECTION 3: Composition/information on ingredients

3.1 Substances

Components:	Daunorubicin Hydrochloride
Percent:	>98.0%(N)
CAS RN:	23541-50-6
EC-No:	245-723-4
Synonyms:	Hydroxydaunorubicin Hydrochloride
Chemical Formula:	$C_{27}H_{29}NO_{10} \cdot HCl$

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.
Ingestion:	Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
Protection of first-aiders:	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Dry chemical, foam, water spray, carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume. Carbon dioxide, Carbon monoxide, Nitrogen oxides (NOx), Hydrogen chloride

5.3 Advice for firefighters

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so. When extinguishing fire, be sure to wear personal protective equipment

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc

6.2 Environmental precautions

Prevent product from entering drains

6.3 Methods and materials for containment and cleaning up

Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a local exhaust if dust or aerosol will be generated. Avoid all contact!

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a refrigerator. Store under inert gas.
Protect from moisture.
Store locked up. Store away from incompatible materials such as oxidizing agents.
Heat-sensitive, Hygroscopic

7.3 Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters No data available

8.2 Exposure controls Install a closed system or local exhaust. Also install safety shower and eye bath.

Respiratory protection: Dust respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
Hand protection: Impervious gloves.
Eye protection: Safety goggles. A face-shield, if the situation requires.
Skin and body protection: Impervious protective clothing. Protective boots, if the situation requires.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state (20°C): Solid
Form: Crystal - Powder
Colour: Yellow red - Red
Odour: No data available
pH: No data available
Melting point/freezing point: 167°C (dec.)
Boiling point/range: No data available
Flash point: No data available
Evaporation rate(Butyl Acetate=1): No data available
Flammability(solid, gas): No data available
Flammability or explosive limits:
Lower: No data available
Upper: No data available
Vapour pressure: No data available.
Vapour density: No data available
Relative density: No data available
Solubility(ies):
[Water] Soluble
[Other solvents]
Soluble: Methanol
Insoluble: Ether, Benzene, Chloroform
Partition coefficient: n-octanol/water: 9.94
Autoignition temperature: No data available
Decomposition temperature: No data available
Dynamic Viscosity: No data available
Kinematic viscosity: No data available

9.2 Other safety information No data available

SECTION 10: Stability and reactivity

10.1 Reactivity No data available

10.2 Chemical stability Stable under proper conditions.

10.3 Possibility of hazardous reactions No special reactivity has been reported.

10.4 Conditions to avoid No data available

10.5 Incompatible materials Oxidizing agents

10.6 Hazardous decomposition products Carbon dioxide, Carbon monoxide, Nitrogen oxides (NOx), Hydrogen chloride

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute Toxicity:	orl-rat LD50:290 mg/kg ipr-rat LD50:14300 ug/kg scu-rat LD50:33200 ug/kg ivn-rat LD50:14300 ug/kg
Skin corrosion/irritation:	No data available
Serious eye damage/irritation:	No data available
Respiratory or skin sensitization:	No data available
Germ cell mutagenicity:	dni-mus-lvr 17 mg/L dnd-mus-ast 95 umol/L mmo-sat 83 ng/plate (+S9) dni-mus-leu 660 nmol/L
Carcinogenicity:	
IARC =	No data available
NTP =	No data available
Reproductive toxicity:	No data available
STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available
RTECS Number:	HB7878000

SECTION 12: Ecological information

12.1 Toxicity

Fish:	No data available
Crustacea:	No data available
Algae:	No data available

12.2 Persistence and degradability No data available

12.3 Bioaccumulative potential No data available

12.4 Mobility in soil

Log Pow:	9.94
Soil adsorption (Koc):	No data available
Henry's Law (PaM ^{3}/mol):	No data available

12.5 Results of PBT and vPvB assessment

PBT:	Not applicable
vPvB:	Not applicable

12.6 Other adverse effects No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

SECTION 14: Transport information

14.1 UN number 2811

14.2 UN proper shipping name

ADR/RID	Toxic solid, organic, n.o.s
IMDG/IMO	Toxic solid, organic, n.o.s
ICAO/IATA	Toxic solid, organic, n.o.s

14.3 Transport hazard class(es)

ADR/RID	6.1: Toxic substance
IMDG/IMO	6.1: Toxic substance
ICAO/IATA	6.1: Toxic substance

14.4 Packaging group

ADR/RID	III
IMDG/IMO	III
ICAO/IATA	III

14.5 Environmental hazards

Marine pollutant -

14.6 Special precautions for user No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No.1907/2006 Not listed

15.2 Chemical safety assessment A chemical safety assessment has not been carried out.

SECTION 16: Other information

Prepared by: TCI EUROPE N.V.
Issue date: 04/11/2019

This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority.
The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

End of Safety Data Sheet