

## Chemical Safety Data Sheet MSDS / SDS

## Paraquat dichloride

Revision Date:2023-05-19 Revision Number:1

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

## Product identifier

Product name : Paraquat dichloride  
CBnumber : CB0486572  
CAS : 1910-42-5  
EINECS Number : 217-615-7  
Synonyms : Paraquat dichloride,methyl viologen

## 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 : 400-158-6606

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Acute toxicity - Category 3, Oral  
Acute toxicity - Category 3, Dermal  
Skin irritation, Category 2  
Eye irritation, Category 2  
Acute toxicity - Category 2, Inhalation  
Specific target organ toxicity – single exposure, Category 3  
Specific target organ toxicity – repeated exposure, Category 1  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## Label elements

## Pictogram(s)

☐☐

Signal word : Danger

## Hazard statement(s)

H301 Toxic if swallowed  
H311 Toxic in contact with skin  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H330 Fatal if inhaled  
H335 May cause respiratory irritation  
H372 Causes damage to organs through prolonged or repeated exposure  
H410 Very toxic to aquatic life with long lasting effects

#### **Precautionary statement(s)**

##### **Prevention**

P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P284 [In case of inadequate ventilation] wear respiratory protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P273 Avoid release to the environment.

##### **Response**

P301+P316 IF SWALLOWED: Get emergency medical help immediately.  
P321 Specific treatment (see ... on this label).  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P316 Get emergency medical help immediately.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P332+P317 If skin irritation occurs: Get medical help.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P320 Specific treatment is urgent (see ... on this label).  
P319 Get medical help if you feel unwell.  
P391 Collect spillage.

##### **Storage**

P405 Store locked up.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

##### **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	: Paraquat dichloride
Synonyms	: Paraquat dichloride, methyl viologen
CAS	: 1910-42-5
EC number	: 217-615-7
MF	: C12H14Cl2N2
MW	: 257.16

---

## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest. Refer immediately for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

#### Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Give a slurry of activated charcoal in water to drink. Refer immediately for medical attention.

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

no data available

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

no data available

---

## SECTION 5: Firefighting measures

### Extinguishing media

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

### Specific Hazards Arising from the Chemical

Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.

### Advice for firefighters

In case of fire in the surroundings, use appropriate extinguishing media.

---

## SECTION 6: Accidental release measures

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

Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

## **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**

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

---

# 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**

Keep in a well-ventilated room. Well closed. Separated from food and feedstuffs. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.

---

# SECTION 8: Exposure controls/personal protection

## **Control parameters**

### **Occupational Exposure limit values**

TLV: (as the cation): 0.05 mg/m<sup>3</sup>, as TWA; (skin); A4 (not classifiable as a human carcinogen)

### **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 face shield or eye protection in combination with breathing protection if powder.

### **Skin protection**

Protective gloves. Protective clothing.

### **Respiratory protection**

Use local exhaust or breathing protection.

#### Thermal hazards

no data available

---

## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Crystals or Crystalline Powder
Colour	Beige or pink to brown
Odour	no data available
Melting point/freezing point	300°C
Boiling point or initial boiling point and boiling range	175°C
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water: soluble
Partition coefficient n-octanol/water	-4.5
Vapour pressure	<0.0001 Pa(25°C)
Density and/or relative density	1.25
Relative vapour density	no data available
Particle characteristics	no data available

---

## SECTION 10: Stability and reactivity

### Reactivity

no data available

### Chemical stability

no data available

### Possibility of hazardous reactions

Decomposes above 300°C . This produces toxic fumes including nitrogen oxides and hydrogen chloride. Attacks metals.

### Conditions to avoid

no data available

### **Incompatible materials**

no data available

### **Hazardous decomposition products**

no data available

---

## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: no data available
- 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**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is severely irritating to the eyes. The substance is irritating to the respiratory tract. The substance is mildly irritating to the skin. Inhalation at high concentrations and ingestion of large amounts may cause effects on the lungs, kidneys, liver and cardiovascular system. This may result in impaired functions and tissue lesions including haemorrhage and lung fibrosis. Exposure to high concentrations could cause death. Medical observation is indicated. The effects may be delayed.

### **STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the nails. This may result in nail damage.

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

---

## 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: UN2588 (For reference only, please check.)

IMDG: UN2588 (For reference only, please check.)

IATA: UN2588 (For reference only, please check.)

### UN Proper Shipping Name

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

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

IATA: PESTICIDE, 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: I (For reference only, please check.)

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

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

### **Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### **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**

Listed.

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

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/>

### Other Information

The toxicological information is the same for paraquat (CAS 4685-14-7). Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of lung fibrosis (shortness of breath, laboured breathing) do not become manifest until several days. Rest and medical observation are therefore essential. Do NOT take working clothes home. Carrier solvents used in commercial formulations may change physical and toxicological properties. If the substance is formulated with solvents also consult the ICSCs of these materials.

#### 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.