SAFETY DATA SHEETS

According to the UN GHS revision 10

1: Identification

1.1 GHS Product identifier

Product name	Picloram

1.2 Other means of identification

Product number	1918-02-1
Other names	Picloram

1.3 Recommended use of the chemical and restrictions on use

Identified uses	Industrial and scientific research use.
Uses advised against	no data available

1.4 Supplier's details

Company	Zhongshan Greenrock Technology Co., Ltd.
Address	No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone	+86-2087066781

1.5 Emergency phone number

Emergency phone number	+86-2087066781
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2: Hazard identification

2.1 Emergency Overview

It is highly corrosive and can cause irreversible damage to the skin and eyes. If in contact, rinse immediately with plenty of water and seek medical help as soon as possible.

2.2 GHS Classification

Serious eye damage/eye irritation : Category 2A
Hazardous to the aquatic environment, acute hazard : Category 1
Hazardous to the aquatic environment, long-term hazard : Category 1
Hazardous to the aquatic environment, long-term hazard : Category 3

2.3 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Warning
Hazard statement(s)	H319 Causes serious eye irritation H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects H412 Harmful to aquatic life with long lasting effects
Precautionary statement(s)	
Prevention	P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264+P265 Wash hands [and ...] thoroughly after handling. Do not touch eyes.
Response	P391 Collect spillage. P305+P351+P338 IF IN EYES,Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. P337+P317 If eye irritation persists,Get medical help.
Storage	no data available
Disposal	P501 Dispose of contents/container to ...

2.4 Physical and chemical

Acidic or alkaline substances that react with metals to produce flammable hydrogen. May cause violent exothermic reactions when in contact with other substances. At high concentrations, they have strong oxidizing or reducing properties.

2.5 Health hazards

Skin contact: May cause severe burns, tissue necrosis, and scarring. Eye contact: May cause corneal damage, vision loss, or even blindness. Inhalation of vapor or mist may cause respiratory burns and pulmonary edema.

2.6 Environmental hazards

Leakage into the environment can change the pH value of soil and water, causing serious ecological damage. It is highly toxic to aquatic organisms and can cause the death of aquatic organisms and the collapse of the ecosystem.

2.7 Other hazards which do not result in classification

no data available

3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration

Picloram	Picloram	1918-02-1	217-636-1	99%

4: First-aid measures

4.1 General advice

Stop contact immediately and remove contaminated clothing; rinse the exposed area with plenty of running water and seek medical attention immediately with the material's SDS. If the corrosive substance is acidic (such as sulfuric acid), neutralize it with a weak alkaline solution (such as 5% sodium bicarbonate) after rinsing. For alkaline corrosive substances (such as sodium hydroxide), neutralize them with a weak acidic solution (such as 1% acetic acid).

4.2 If inhaled

Move to fresh air and keep the airway open. If corrosive vapors (such as hydrochloric acid mist) are inhaled, immediately administer nebulized inhalation (normal saline + dexamethasone). If laryngeal edema or breathing difficulties occur, immediately perform a tracheotomy (requires professional operation) and seek medical attention.

4.3 In case of skin contact

Rinse with plenty of running water for 20-30 minutes (make sure to rinse thoroughly, especially between the fingers, in the armpits, and other folds). If blisters are present, do not prick them; instead, apply a sterile gauze compress (to avoid adhesion). Do not apply oily ointments to avoid affecting subsequent treatment.

4.4 In case of eye contact

Immediately flush with an eyewash or plenty of normal saline for 15-20 minutes (use a gentle flow to avoid direct exposure to the cornea); apply antibiotic eye ointment (such as erythromycin ointment) to the eyelids, wear a sterile eye patch, and seek immediate medical attention from an ophthalmologist.

4.5 If swallowed

Do not induce vomiting (to avoid secondary damage to the esophageal mucosa). If the substance is acidic, take milk or egg white orally (to protect the gastric mucosa). If the substance is alkaline, take diluted vinegar (1:10 ratio) orally. If you carry SDS, seek medical attention immediately for a gastroscopy.

4.6 Most important symptoms and effects, both acute and delayed

Acute symptoms: skin redness, swelling, blisters, ulcers, severe eye pain, photophobia, blurred vision, oral/esophageal burns, and difficulty swallowing; long-term effects: skin scarring, corneal scarring (possibly causing blindness), and esophageal stenosis.

4.7 Protection of first-aiders

Rescuers must wear corrosion-resistant chemical protective clothing, chemical protective gloves (made of fluororubber), chemical goggles and masks; stand upwind when flushing to avoid inhaling volatile corrosive gases; after contact, equipment must be cleaned with a neutralizer and then rinsed with clean water.

4.8 Notes to physician

Inform the doctor of the type of corrosive agent (acid/base), concentration, and duration of contact. Skin burns should be treated according to their depth (superficial II degree and above require skin grafting). Eye injuries should be checked for corneal epithelial integrity and, if necessary, corneal repair drugs (such as recombinant human epidermal growth factor) should be used.

5: Fire-fighting measures

5.1 Unsuitable extinguishing media

Acidic corrosive substances (such as sulfuric acid): It is strictly forbidden to use water (it releases heat when in contact with water, causing splashing) or alkaline fire extinguishing agents (it neutralizes the heat and increases the risk); Alkaline corrosive substances (such as sodium hydroxide): It is strictly forbidden to use acidic fire extinguishing agents.

5.2 Specific hazards during fire fighting

Combustion is accompanied by splashing of corrosive liquids, causing severe burns to the skin/eyes; some corrosive substances (such as nitric acid) release toxic gases when burned and also corrode fire-fighting equipment; high-temperature molten substances (such as molten alkali) easily adhere to the skin and cause deep burns.

5.3 Hazardous combustion products

Acidic corrosive substances release hydrogen chloride and sulfur dioxide (such as sulfuric acid); alkaline corrosive substances release ammonia (such as ammonia water); chlorine-containing corrosive substances release chlorine gas.

5.4 Specific extinguishing methods

Small area: Use dry powder fire extinguishing agent to put out the fire. If it is solid corrosive material, cover it with dry sand (to isolate it from the air); Large area: Cool the surrounding containers first, then use dry powder to put out the fire. It is strictly forbidden to use water directly to prevent splashing; After extinguishing the fire, use a neutralizer (weak base for acid, weak acid for alkali) to deal with the leaked material.

5.5 Special protective equipment for fire-fighters

Wear fully enclosed corrosion-resistant chemical protective clothing, chemical protective gloves (fluororubber), chemical goggles + mask; carry a pH tester (to monitor the pH value of the leak); after the operation, the equipment needs to be cleaned with a neutralizer and then rinsed with clean water.

6: Accidental release measures

6.1 Protective measures for workers

Wear fully enclosed chemical protective clothing (acid and alkali resistant), chemical protective gloves (fluororubber), chemical goggles + face mask; wear a gas mask (acid/alkali filter box) when dealing with volatile corrosive substances.

6.2 Environmental protection measure

Prevent leaked material from contacting skin or eyes; do not discharge into water or soil; treat contaminated ground with a neutralizer (sodium carbonate for acid, dilute acetic acid for alkali) until neutral.

6.3 Containment methods for leaked chemicals

Collect liquids in sealed polyethylene containers; collect solids with corrosion-resistant tools and place them in chemical-resistant bags (marked "corrosive"); store them in isolation after collection.

6.4 Cleanup methods for chemical spills

Small leakage: absorb with acid/alkali resistant cotton and then neutralize; Large leakage: transfer to storage tank with corrosion resistant pump; After cleaning, flush the ground with plenty of water (if compatible), and collect the flushing water for neutralization.

6.5 Measures to prevent the spread of leaks

Designate an 8-meter isolation zone; use corrosion-resistant isolation belts for blocking; and enhance ventilation (corrosion-resistant fans) for volatile corrosive substances.

6.6 Container leakage treatment

Minor leaks: seal with acid/alkali resistant putty; severe leaks: evacuate, have professionals transfer remaining substances, and do not reuse damaged containers.

6.7 Special considerations

In case of skin contact, rinse with an eyewash for 15 minutes; in case of eye contact, rinse with an eyewash for 15 minutes and seek medical attention; add reagents slowly during neutralization (to prevent heat release); clean protective equipment with neutralizer and then rinse with clean water.

7: Handling and storage

7.1 Safe storage conditions

Store in a corrosion-resistant warehouse (the floor is epoxy resin coated, and the walls are acid/alkali-resistant tiles); the container is made of corrosion-resistant material (glass fiber reinforced plastic for acid corrosion, high-density polyethylene for alkaline corrosion), with a capacity of ?200L to prevent dumping; the warehouse is equipped with an emergency neutralization tank (volume ?5m^3) and equipped with acid/alkali neutralizers (such as sodium carbonate, dilute acetic acid).

7.2 Storage precautions

Store them separately from materials that may come into contact with the skin (such as clothing and gloves) to avoid cross contamination. Use a corrosion-resistant forklift to transport containers and avoid impact. Check the humidity in the warehouse daily (?65%) to prevent moisture from exacerbating corrosion. In case of leakage, immediately absorb it with inert materials (such as sand) and then treat it with a neutralizer.

7.3 VCI Storage Grade

Level 2 (medium-high): Metal pipes and valves are coated with VCI anti-rust paint (acid/alkali resistant type) and maintained once every six months; VCI anti-rust blocks (such as urethane) are placed in the warehouse and replenished once every quarter to prevent corrosion of metal parts.

7.4 Recommended storage temperature

5-35?, avoid sudden temperature changes (such as moving directly from a low temperature environment to a high temperature environment); concentrated acids/bases must be kept at a temperature ?30? to prevent temperature increases from causing increased container pressure; in winter, they must be protected from freezing (temperature ?5?) to prevent the solution from freezing and cracking the container (if the label has a recommended storage temperature, follow the label).

7.5 Handling

For precautions see Safety Data Sheet section 2
Advice on safe handling : Work under hood. Do not inhale substance/mixture.

8: Exposure controls/personal protection

8.1 Respiratory protection

When exposed to corrosive vapors (such as hydrochloric acid mist and sulfuric acid mist), wear a powered air-purifying respirator (APF?50); in high-concentration environments, a positive pressure air respirator is required to avoid inhalation burns to the respiratory tract.

8.2 Recommended Filter type

For acidic corrosive substances, choose Type E filter cartridge (protects against acidic gases such as SO? and HCl); for alkaline corrosive substances, choose Type K filter cartridge (protects against ammonia and amines); if the product contains dust, add Type P2 filter cotton.

8.3 Eye/face protection

Wear chemical protective goggles + full-face mask. The mask must cover the chin. The lens should be made of polycarbonate (corrosion-resistant and impact-resistant). Check the sealing regularly.

8.4 Skin and body protection

Wear corrosion-resistant chemical protective clothing made of fluororubber or polytetrafluoroethylene (PTFE) to avoid direct skin contact; wear an apron (of the same material) with protection covering the chest to the knees.

8.5 Hand protection

Wear corrosion-resistant gloves. For acid corrosion, choose neoprene material; for alkaline corrosion, choose nitrile rubber material. The thickness of the gloves should be ?0.5mm. Perform a water leakage test before use.

8.6 Hygiene measures

Immediately after the operation, rinse the skin with running water for 10 minutes. If there is stinging at the contact site, apply a neutralizer (5% sodium bicarbonate for acid and 1% acetic acid for alkali) for 5 minutes. Do not use irritating skin care products to avoid aggravating skin damage.

9: Physical and chemical properties and safety characteristics

Physical state	PHYSICAL DESCRIPTION: Fine beige crystals or white powder. Odor of chlorine.
Colour	White powder
Odour	Chlorine-like odor
Melting point/freezing point	200?°C (dec.)(lit.)
Boiling point or initial boiling point and boiling range	Decomposes (NIOSH, 2016)
Flammability	Combustible SolidCombustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	Tordon 22k: 46 deg c toc; tordon 101 mixture--combustible with an toc flash point of 35 deg c; Tordon 155 mixture--104 deg c coc /Tordon/
Auto-ignition temperature	no data available
Decomposition temperature	In aqueous solution, decomposed by UV irradiation
pH	pH of saturated solution 3.0 (24.5°C)
Kinematic viscosity	no data available
Solubility	In water:420 mg/L
Partition coefficient n-octanol/water	log Kow = 0.30
Vapour pressure	6.16e-07 mm Hg at 35°C
Density and/or relative density	1.8±0.1 g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Storage stability: a minimum of 2 years

10.3 Possibility of hazardous reactions

Tordon 10k pellets are nonflammable.PICLORAM may be sensitive to prolonged exposure to light. Aqueous solutions may be decomposed by light. This chemical is incompatible with strong oxidizing agents, strong acids, acid chlorides and acid anhydrides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Hot concentrated alkali (hydrolyzes).

10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /hydrogen chloride and nitrogen oxides/.

11: Toxicological information

11.1 Acute toxicity

Oral: LD50 Rat (male, Sprague-Dawley derived) oral 950 mg/kg (95% CI: 812-1120 mg/kg)
Inhalation: no data available
Dermal: LD50 Rabbit percutaneous >2000 mg/kg

11.2 Skin corrosion/irritation

no data available

11.3 Serious eye damage/irritation

no data available

11.4 Respiratory or skin sensitization

no data available

11.5 Germ cell mutagenicity

no data available

11.6 Carcinogenicity

Cancer Classification: Group E Evidence of Non-carcinogenicity for Humans

11.7 Reproductive toxicity

no data available

11.8 STOT-single exposure

no data available

11.9 STOT-repeated exposure

no data available

11.10 Aspiration hazard

no data available

12: Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Salvelinus namaycush (Lake trout) weight 0.3 g; Conditions: static without aeration, 10°C, pH 7.2-7.5, alkalinity 30-35 mg/L, hardness 40-50 mgL as CaCO3; Concentration: 4.3 mg/L for 96 hr @ 10°C (95% confidence limit 4.0-4.5 mg/L), /Technical material 90-100%
Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) 1st instar larva; Conditions: freshwater, static; Concentration: 68300 ug/L for 48 hr (95% confidence interval: 63000-75000 ug/L); Effect: intoxication, immobilization /93.8% purity
Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green Algae); Conditions: freshwater, static; Concentration: 36790 ug/L for 96 hr (95% confidence interval: 35100-38750 ug/L); Effect: population abundance /93.4% purity
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Possible pathways for aerobic primary degradation of picloram are decarboxylation or amino displacement(1). Soil half-lives for picloram at various initial concentrations were 55 days at 0.25 ppm (7 days lag-phase), 90 days at 0.5 ppm (30 days lag phase), and 180 days at 1.0 ppm (90 days lag phase)(2). Picloram was degraded through aerobic metabolism in seven soils, half-lives ranging from 167 to 513 days, with carbon dioxide being the major degradate(3). Aerobic degradation half-lives for picloram at various application rates were 18 days at 0.0025 ppm, 29 days at 0.025 ppm, 150 days at 0.25 ppm, and 300 days at 2.5 ppm(4). After 100 days incubation in 3 soil types, remaining picloram concentrations were 63 to 77% of the initial concentrations(5). Degradation of 75 to 100% picloram in soils required 18 months(6). No detectable degradation of picloram was observed in 8 weeks in soil with high organic matter content from Pentego, NC(7). In the presence of a mixture containing 0.5% fertile garden soil, yeast, and other organics, picloram persisted >275 days(8). In a 423 day period using a picloram concentration of 0.4 ppm, some soils had 52 to 82.5% of the picloram decomposed and others had only 5.2 and 7.6% decomposed(9). Degradation of picloram in thirteen soils after incubation for 6 months ranged from 0 to 60% at 3 mg/L, from 0 to 84% at 1.5 mg/L, from 5 to 94% at 0.75 mg/L, from 28 to 99% at 0.375 mg/L, from 38 to >99% at 0.188 mg/L, from 32 to >99% at 0.094 mg/L, from 28 to >99% at 0.047 mg/L(10). Most of the soils showed a tendency towards greater percentage detoxification for lower concentrations(10). Picloram was applied at a rate of 10 ppm to five different soils, after 124 days of alternating wet and drying cycles, picloram remained in the soil 82.7 to 91.0% incubated at 30°C and 86.0 to 93.0% incubated at 50°C(11). The amount of non-degraded picloram in groundwater from 4 sites after incubation for 15 weeks (105 days) was 60.8 to 82.4% (average 71.6%) at an initial concentration of 0.72 ppm, and 60.7 to 79.8% (average 67.9%) at an initial concentration of 10.0 ppm(12).

12.3 Bioaccumulative potential

BCFs of 0.11 and 0.54 were reported in bluegill sunfish exposed for 28 days at C14 labeled picloram concentrations of 1.0 and 0.1 mg/L, respectively, using a flow-thru system(1). The BCF of picloram in fish was also measured as 31 using the flowing water method(2-3). According to a classification scheme(4), these BCF values suggest bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Experimental Koc values for picloram are 12.7(1-2), 25.2(3), 0.026(4), 17(5), and 25.5(6). Koc values for picloram in soils were 11.1, 22.1, 11.2, 12.5, 18.0, 20.6 and 9.9 at 0.74, 2.92, 1.03, 1.36, 0.45, 1.89, and 1.17% organic carbon, respectively(7). Koc values for 28 different types of pasture soils with varying amounts of organic carbon ranged from 14 to 100(8). According to a classification scheme(9), these Koc values suggest that picloram is expected to have very high to high mobility in soil. The pKa of picloram is 2.3(10), indicating that this compound will exist almost entirely in anion form in the environment and anions generally do not adsorb more strongly to organic carbon and clay than their neutral counterparts(11). Leaching potential is greatest in sandy soils low in organic matter(12-13). Picloram is usually confined to the upper 1 foot (30 cm) when application rates are low (<1 lb/acre, <1.12 kg/ha), but that picloram can readily move to depths >3 feet (approximately 1 meter), even in relatively dry areas, when the application rate is high (3 to 9 lb/acre, 3 to 10 kg/ha)(16).

12.5 Other adverse effects

no data available

13: Disposal considerations

13.1 Disposal methods for waste chemicals

Acidic corrosives can be treated with alkaline neutralizers (such as sodium carbonate) until neutralized and then disposed of as ordinary waste. Alkaline corrosives can be treated with acidic neutralizers (such as dilute hydrochloric acid) until neutralized and then disposed of. Those that cannot be neutralized must be incinerated at high temperature or chemically decomposed by a professional unit. The container must be thoroughly cleaned before being disposed of.

13.2 Precautions

Neutralization reactions must be conducted in well-ventilated, dedicated facilities, with the reaction rate controlled to prevent splashing. Disposal personnel must wear corrosion-resistant protective gear. The pH value of the neutralized waste must be controlled between 6 and 9. Direct disposal of unneutralized corrosive materials is prohibited. Emergency pools must be established at the disposal site to prevent leakage and contamination.

14: Transport information

14.1 UN Number

ADR/RID: no data available	IMDG: no data available	IATA: no data available

14.2 UN Proper Shipping Name

ADR/RID: no data available IMDG: no data available IATA: no data available

14.3 Transport hazard class(es)

ADR/RID: no data available IMDG: no data available IATA: no data available

14.4 Packing group, if applicable

ADR/RID: no data available IMDG: no data available IATA: no data available

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Picloram	Picloram	1918-02-1	217-636-1
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Australian Inventory of Industrial Chemicals (AIIC)			Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
European INventory of Existing Commercial chemical Substances			Not Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			Listed.
TSCA Inventory of Chemical Substances			Listed.

16: Other information

Information on revision

SDS Creation Date	July 1, 2025
SDS Revision Date	July 1, 2025

Abbreviations and acronyms in SDS

- 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%

SDS 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?pageID=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/

Any questions regarding this Safety Data Sheet, Please send your inquiry to sales@MolBest.com

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