ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Picloram

Revision Date:2025-06-14 Revision Number:1

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

Product identifier

Product name	: Picloram
CBnumber	: CB8143725
CAS	: 1918-02-1
EINECS Number	: 217-636-1
Synonyms	: picloram,Phytic acid

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

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

Label elements

Pictogram(s)

Signal word	Warning

Hazard statement(s)

H303 May be harmfulif swallowed

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

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

P314 Get medical advice/attention if you feel unwell.

P391 Collect spillage. Hazardous to the aquatic environment

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continuerinsing.

P337+P313 IF eye irritation persists: Get medical advice/attention.

P405 Store locked up.

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

P501 Dispose of contents/container to.....

Prevention

P273 Avoid release to the environment.

Response

none

Storage

none

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	: Picloram
Synonyms	: picloram,Phytic acid
CAS	: 1918-02-1
EC number	: 217-636-1
MF	: C6H3Cl3N2O2
MW	: 241.46

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest.

Following skin contact

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

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth.

Most important symptoms and effects, both acute and delayed

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, respiratory system; nausea Target Organs: Eyes, skin, respiratory system, liver, kidneys (NIOSH, 2016)

Indication of any immediate medical attention and special treatment needed

Skin decontamination. Skin contamination should be treated promptly by washing with soap and water. Contamination of the eyes should be treated immediately by prolonged flushing of the eyes with large amounts of clean water. If dermal or ocular irritation persists, medical attention should be obtained without delay. Other herbicides

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SECTION 5: Firefighting measures

Extinguishing media

Fire Extinguishing Media: Pathway; water fog, alcohol foam, CO2, dry chemical.

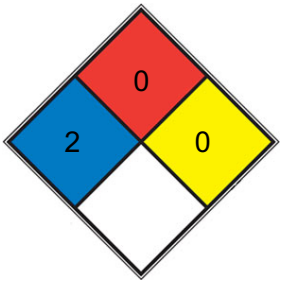
Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

Advice for firefighters

Use water spray, foam, powder, carbon dioxide.

NFPA 704



■	HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. diethyl ether, ammonium phosphate, iodine)
■	FIRE	0	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

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

NO open flames. 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

Dry. Keep in a well-ventilated room. Separated from : see Chemical Dangers. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.Keep containers closed. Do not cut or weld container.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 10 mg/m3, as TWA; 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 safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Avoid inhalation of dust.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Granules
Colour	White, tan
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 Solid
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	no data available
pH	pH of saturated solution 3.0 (24.5 deg C)
Kinematic viscosity	no data available
Solubility	Soluble in acetone
Partition coefficient n-octanol/water	log Kow = 0.30
Vapour pressure	6.16e-07 mm Hg at 95° F (NTP, 1992)
Density and/or relative density	no data available
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces nitrogen oxides (see ICSC 0067, ICSC 0930) and hydrogen chloride (see ICSC 0163). Reacts with strong acids, strong bases and strong oxidants. This generates fire and explosion hazard.

Chemical stability

Storage stability: a minimum of 2 years

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. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Hot concentrated alkali (hydrolyzes).

Hazardous decomposition products

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

SECTION 11: Toxicological information

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

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

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

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

The substance may have effects on the liver.

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing 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: LC50; Species: Salvelinus namaycush (Lake trout) weight 0.3 g; Conditions: static without aeration, 10 deg 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 deg 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

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 deg C and 86.0 to 93.0% incubated at 50 deg 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).

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).

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).

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: no data available

IMDG: no data available

IATA: no data available

UN Proper Shipping Name

ADR/RID: no data available

IMDG: no data available

IATA: no data available

Transport hazard class(es)

ADR/RID: no data available

IMDG: no data available

IATA: no data available

Packing group, if applicable

ADR/RID: no data available

IMDG: no data available

IATA: no data available

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

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?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/

Other Information

Carrier solvents used in commercial formulations may change physical and toxicological properties.Do NOT take working clothes home.