Chemical Safety Data Sheet MSDS / SDS

Atrazine SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Atrazine

CAS: 1912-24-9

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Skin sensitization, Category 1
Specific target organ toxicity - repeated exposure, Category 2

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H317 May cause an allergic skin reaction
H373 May cause damage to organs through prolonged or repeated exposure
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.

Response

P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P317 If skin irritation or rash occurs: Get medical help.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P319 Get medical help if you feel unwell.
P391 Collect spillage.

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 which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Atrazine
Common names and synonyms:	Atrazine
CAS number:	1912-24-9
EC number:	217-617-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse and then wash skin with water and soap.

Following eye contact

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

Following ingestion

Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Irritates eyes and skin. If ingested, irritates mouth and stomach. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

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

SECTION 5: Firefighting measures

Suitable extinguishing media

Use dry chemical, foam, or CO2 extinguisher media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Atrazine 4L Herbicide

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating hydrogen chloride and toxic oxides of nitrogen may be formed. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

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

Wear chemical safety glasses or goggles, rubber gloves, waterproof boots, long sleeved shirt, long pants, hat and an NIOSH

approved dust or pesticide respirator. For small spills, cover the spill with an absorbent material. Sweep up the material and place in an appropriate chemical waste container. Wash the spill area with water containing a strong detergent, absorb with an absorbent material, sweep up and place in a chemical waste container. Seal the container and dispose of in an approved manner. Rinse the spill area with water to remove any residue. Do not allow wash or rinse water to contaminate water supplies. Atrazine 4L Herbicide

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

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Store in an area without drain or sewer access.Store the material in a well ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, adn cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling. Atrazine 4L Herbicide

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 2 mg/m3, as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans).MAK: 1 mg/m3; peak limitation category: II(2); pregnancy risk group: C

Biological limit values

no data available

Appropriate engineering 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, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation (not if powder).

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Solid. Powder.
Colour:	Atrtazine (technical) was seen to be bright white with a 90% reflectance equivalent to a N 9.5/white on the neutral scale of the Munsell Book of Color. the appaerance of the test compound was compared to the Munsell neutral value scale.
Odour:	Odorless
Melting point/freezing point:	177 - 178. Atm. press.:1 atm. Remarks:Mean result to nearest 0.5°C.
Boiling point or initial boiling point and boiling range:	313.03 °C. Atm. press.:1 atm.
Flammability:	Noncombustible Solid, but may be mixed with flammable liquids.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	76°C(lit.)
Auto-ignition temperature:	> 450 °C. Remarks:At atm. press. of 1.0 atm.

Decomposition temperature:	no data available
pH:	6.47. Remarks:Overal mean of 10 accettable results (see the box "remarks on results". The associated standard deviation was 0.04 units.
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 67.1° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = 2.59. Temperature:20 °C.
Vapour pressure:	0 Pa. Temperature:25 °C. Remarks:With a calculated error range of 63%.
Density and/or relative density:	1.23. Temperature:20 °C.
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes including hydrogen chloride and nitrogen oxides.

Chemical stability

Stable in neutral, slightly acidic or basic media

Possibility of hazardous reactions

Nonflammable.ATRAZINE undergoes slow hydrolysis at 158° F under neutral conditions. Hydrolysis is more rapid in acidic or alkaline conditions. Forms salts with acids (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

Strong acids, strong bases.

Hazardous decomposition products

Hazardous decomposition products may include but are not limited to carbon monoxide, hydrogen cyanide, acetonitrile. Atrazine 4L Herbicide

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male/female) - 2 220 mg/kg bw. Remarks:24 hours.

Inhalation: LC50 Rat inhalation >5800 mg/cu m 4hr

Dermal: LD50 Rat percutaneous >3100 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: Not Likely to be Carcinogenic to Humans

Reproductive toxicity

no data available

STOT-single exposure

The substance is severely irritating to the eyes.

STOT-repeated exposure

The substance may have effects on the liver. This may result in tissue lesions.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill) weight 0.6 g; Condtions: freshwater, static, 22 deg C, pH 7.1, hardness 43 mg/L CaCO3; Concentration: 48000 ug/L for 24 hr (95% confidence interval: 42000-55000 ug/L) /43% purity

Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - > 29 mg/L - 24 h.

Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 0.043 mg/L - 72 h.

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: An addition of fly ash up to 0.5% in a sandy clay loam results in increased degradation of atrazine by 13.3% on the average; the same amount of fly ash in clay soil increases atrazine degradation by 9.0%(1). The half-life of atrazine at 25 deg C in wet (and dry) Colorado loam soil, New York sandy loam soil, and Mississippi silt loam was determined to be 30 (90), 28 (55), and 35 (78) days respectively(2). The percent atrazine remaining from rhizosphere and edaphosphere (non-vegetated) soil samples collected at an agrochemicals dealership in Iowa was determined to be approximately 55% in the rhizosphere and 75% in the edaphosphere, suggesting that the microbial activity of Kochia sp in the rhizosphere soil increased atrazine degradation(3). Atrazine was found to exhibit a half-life of about 30 days in soil samples collected from the top surface (10 cm) from the Ebro delta, Tarragona, Spain between 1989 and 1991; deethyl atrazine was the major degradate formed, with deisopropylatrazine detected in one sample(4). Degradation studies of atrazine in subsoils from an Atlantic coastal plain watershed revealed 13.3 to 25.0% carbon dioxide evolution from sandy loam soils, indicating that atrazine was not appreciably mineralized in the soils(5). Atrazine had half-lives in the range of 20-360 days, observed in laboratory studies conducted with loamy soil from a corn field in

Bologna, Italy(6). The shortest half-lives were observed for soils inoculated at temperatures of 35 deg C, while the longest half-lives observed occurred at 5 deg C(6). Experiments with s-triazine-adapted Colorado soil (35.2% sand, 28% silt, 36.8% clay, 19 g C/kg organic matter and pH 7.9) had atrazine degradation half-lives of 2.0 to 28.2 days(7). Experiments with s-triazine-adapted Mississippi soil (15.8% sand, 47.2% silt, 36.7% clay, 13 g C/Kg organic matter and pH 6.67) had atrazine degradation half-lives of 0.8 to 5.6 days(7).

Bioaccumulative potential

The BCF of atrazine in various aquatic organisms is: bluegill sunfish, <2.1-12; whitefish fry, 4-5; brook trout, <0.27; fathead minnows, 0.9-2.1; mottled sculpin, 2.0; golden ide, 1.0; black bullhead, 0.3; fish, 11; annelids, 4; freshwater snail, 4-5; mayfly nymphs, 480; snails, 7.5; daphnids, 2.2-4.4; algae, 76; soil fungi and bacteria, 87-132(1). Experimental log BCF values of 2.0, 1.0, 0.9, 0.5 and 0.3 have been reported for atrazine in Cottus bairdi (mottled sculpin)(2), Leuciscus idus melanotos (golden ide)(3), Pimephales promelas (fathead minnow)(4), Coregonus fera (whitefish)(5) and Ictaluras melas (catfish)(6), respectively. In vivo sampling of juvenile rainbow trout (Oncorhynchus mykiss) resulted in BCF of 0.49 in muscle and 4.94 in adipose tissue(7). According to a classification scheme(8), these BCF values suggest bioconcentration in aquatic organisms is low to moderate(SRC). The BCF of atrazine in Daphnia magna ranged from 2.4 to 3.0 in natural European waters (13 rivers, 1 humic lake)(9).

Mobility in soil

The Koc of atrazine in loamy soil, calcareous clay, and high clay was determined to be 109.9, 80.0, and 88.9, respectively(1). The Koc values for atrazine in four Hawaii soils ranged from 54 to 150 mL/g(2). The Koc for a Zimmerman fine sand, a Verndale sandy loam, and a Waukegan silt loam, each with 9.6% water content, was determined to be 1164, 775, and 936, respectively(3). The Koc range for atrazine in salt marsh sediment was 64 to 546, indicating that atrazine undergoes negligible adsorption onto suspended sediments(4). The Koc of atrazine in Norfolk soil, Rion soil, Cape Fear soil, and Webster soil was determined to be 150-200, 84, 202, and 166, respectively(5). Atrazine had a reported mean Koc of 126.9 (range of 26 to 821) in 101 allophanic and non-allophanic surface soil samples collected throughout New Zealand(6). Koc values for three regions of Argentina were reported as 77 to 161(7). Koc values of two soils from Reunion Island, France were reported as 97 and 117(8). Atrazine had measured Koc values of 88 in vegetated filter strip soil (37.9% sand, 31.9% silt, 30.2% clay, 4.2% organic carbon, pH 7.6) and 92 in cultivated soil (36.8% sand, 29.5% silt, 33.7% clay, 2.5% organic carbon, pH 7.6)(9). According to a classification scheme(10), these Koc values suggest that atrazine is expected to have very high to slight mobility in soil, depending upon soil type(SRC). The rate constant for sorption and desorption of atrazine by organic soil at 25 deg C was determined to be 5.02X10-2/day (half-life = 13.8 days) for sorption and 0.1507/day (half-life = 4.6 days) for desorption(11). Atrazine sorption half-life ranged from 3.6 to 735 days and desorption half-life ranged from 1 to 11 days in slurries of a mineralized soil(12).

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: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (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

Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

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

Temperature of decomposition is unknown in the literature.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.