SAFETY DATA SHEET

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 20, 2018

Revision Date: Aug 20, 2018

1.Identification

1.1 GHS Product identifier

Product name monolinuron

1.2 Other means of identification

Product number AO462

Other names N’-(4-chlorophenyl)-N-methoxy-N-methylurea

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only.

Uses advised against no data available

1.4 Supplier's details

Company Acros PharmaTech Limited

Address HongKong: Unit 3A-8,12/F,Kaiser Centre,No.18 Centre Street,Sai Ying Pun,HongKong
Mainland: Suite 920,Changwu Road 888,Changzhou,Jiangsu,China

Telephone 86(519)85265509

2.Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

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

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H302 Harmful if swallowed

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

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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

P273 Avoid release to the environment.

Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/…if you feel unwell. P330 Rinse mouth. P314 Get medical advice/attention if you feel unwell. P391 Collect spillage.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
monolinuron	monolinuron	1746-81-2	none	≥98%

4.First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Rest. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

no data available

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

Treatment should include decontamination and aggressive supportive care. Additionally, methylene blue, 1 to 2 mg/kg/dose, should be given if significant methemoglobinemia is present. /Urea-substituted herbicides/

5.Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, powder, foam, carbon dioxide.

5.2 Specific hazards arising from the chemical

no data available

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Do NOT wash away into sewer. 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. Do NOT let this chemical enter the environment. Personal protection: chemical protection suit including self-contained breathing apparatus.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs.

8.Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	COLOURLESS CRYSTALS.
Colour	COLORLESS CRYSTALS
Odour	ODORLESS
Melting point/ freezing point	76-78ºC
Boiling point or initial boiling point and boiling range	no data available
Flammability	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	100 °C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	735 ppm in water at 20°C; sol in alcohol, acetone, benzene, toluene
Partition coefficient n-octanol/water (log value)	log Kow = 2.30
Vapour pressure	1.5X10-4 MM HG AT 22 DEG C
Density and/or relative density	1.304g/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

STABLE AT MELTING POINT & IN SOLN BUT SLOWLY DECOMPOSES IN ACIDS & BASES...

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1 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

12.2 Persistence and degradability

Biodegradation of monolinuron in activated sludge resulted in a 0.9% loss of the initial concentration after 5 days(1). Monolinuron, dissolved in acetone/water and sprayed onto ground waste (compost), was demethylated in small amounts (0.4% of the extracted radioactivity) after 3 weeks to N-methoxy-N'-4-chlorophenyl-urea, whereas 86.2% of the extractable radioactivity was unaffected started material(2). A mixed bacterial culture (containing Gram-negative aerobic rods and Gram-positive aerobic non-spore-forming rods, and cocco-bacilli) from soil (sandy loam) was able to degrade monolinuron completely after 10 days(3).

12.3 Bioaccumulative potential

Bioaccumulation tests using activated sludge, algae, and fish (golden ide) gave BCF values for monolinuron of 70 (5-day), 40 (1-day), and 20 (3-day), respectively(1). The BCF for monolinuron has been estimated to be 17 and 10 based on water solubility and Koc, respectively(2). Another BCF value monolinuron was calculated to be 22(3). The experimental BCF value of monolinuron in the algae Chloroella was 33 after exposure to 50 ug/l for 24 hours(4). The BCF value for monolinuron in fish (golden orfe) and algae (Chlorella Fusca) were experimentally determined to be <20 (3-day at 45 ug/l) and 60 and 140 (24 hours at 50 ug/l), respectively(5). According to a recommended classification scheme(6), the experimental BCF values suggest that monolinuron should undergo moderate to high bioconcentration in aquatic organisms(SRC).

12.4 Mobility in soil

The Koc for monolinuron has been estimated and experimentally determined to be 200(1,4). The Koc for monolinuron has also been experimentally determined to be 69.2(2). An average Koc value has been reported to be 40 in soils with organic carbon contents ranging from 0.58-2.3%(3). The Koc for monolinuron has been determined to be 60.3(5). The Koc values determined for monolinuron ranged from 211 to 2025 with an average of 517 in eight Czechoslovakian soils with organic matter contents ranging from 0.1-4.6%(6). The average Koc value for monolinuron in 10 different soils was determined to be 271.5(7). Another average Koc value has been determined to be 60(8). According to a recommended classification scheme(9), these Koc values suggest that monolinuron should have slight to very high mobility in soil(SRC).

12.5 Other adverse effects

no data available

13.Disposal considerations

13.1 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.

14.Transport information

14.1 UN Number

ADR/RID: UN3077 IMDG: UN3077 IATA: UN3077

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG: yes IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

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
monolinuron	monolinuron	1746-81-2	none
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)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.

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/

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.