

MATERIAL SAFETY DATA SHEET OF

2, 4-D acid 96% TC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: Shanghai Bosman Industrial Co., Ltd

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Product name: 2, 4-D acid 96% TC

Chemical family: Aryloxyalkanoic acid

Chemical formula: C₁₀H₁₃Cl₂NO₃

Mol. wt.: 266.1

Composition

CHEMICAL NAME	CAS NO.	Result (%w/w)
2,4-D acid	94-75-7	96%
Other ingredient	--	Balance

3. HAZARDS IDENTIFICATION

Main hazards: May cause eye irritation with corneal injury, even blindness. Prolonged or repeated exposure may cause skin irritation.

Environment : Dangerous for the environment.

Eye contact: Irritating to eyes.

Skin contact: Lightly irritating to skin

Ingestion: Harmful if large amounts are swallowed.

Inhalation: Harmful by inhalation. Moderately irritating to respiratory tract.

Other effects: See section11..

4. FIRST AID MEASURES

Inhalation: Vapour inhalation is unlikely; inhalation of dust or droplets may cause irritation to respiratory tract.

In case of inhalation, remove source of contamination, or leave contaminated area to fresh air as rapidly as

possible. Keep victim from contact for at least 2 - 3 days.

Skin contact: If irritation occurs, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non abrasive soap. Dermal absorption may lead to systemic poisoning. Seek medical advice immediately if irritation persists.

Eye contact: Immediately flush eyes with gently flowing lukewarm water or saline solution for 15 minutes, holding the eyelids open. Seek medical attention.

Ingestion: Unlikely to occur under occupational conditions. In case of deliberate ingestion, have victim rinse mouth thoroughly with water. Do not induce vomiting. Give plenty of water to drink. Seek medical advice immediately. If breathing has stopped, apply artificial respiration.

Advice to physician: There is no antidote. If substantial amounts have been ingested, spontaneous emesis may occur. If vigorous emesis has not occurred, measures should be taken to empty the stomach and limit gastrointestinal absorption by gastric intubations, aspiration and lavage following replacement of a cuffed endotracheal tube. Repeated administration of charcoal at half or more the original dosage every 2-4 hours may be beneficial..

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

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

Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENT RELEASE MEASURES

Personal precautions: Chemical protective clothing usage is advised, i.e. wear neoprene gloves, cotton overalls and safety goggles.

Environmental precautions: Do not allow spill to contaminate water supplies. Dike far ahead of liquid spills for later disposal..

Methods for cleaning up:

Large spills: Keep spectators away. Isolate hazard area and deny entry. Stay up-wind, out of lowlying areas, and ventilate closed spaces before entering. Cover spill with absorbent material. Sweep into disposal container. Wash area with detergent and water and follow with clean water rinse. Do not allow spill to contaminate water supplies. Prevent entry into waterways, sewers, basements or confined area. Dike far ahead of liquid spills for

later disposals.

Small spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Spill/leak Procedures: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off all ignition sources.

7. HANDLING AND STORAGE

HANDLING:

Relatively safe to handle. Handle all crop protection chemicals with care and caution. Do not eat, drink, smoke or go to the toilet with pesticide-contaminated hands. Always wash hands thoroughly after handling pesticide or waste.

STORAGE:

Do not store near sources of heat. Store in a dry, cool, well-ventilated warehouse in well labelled containers.

Not to be stored next to foodstuffs and water supplies. Keep away from children and animals. Local regulations should be complied with.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits: 2, 4-D dimethylamine salt: None established; ACGIH TLV and OSHA PEL are 10 mg/M3 for the acid. PELs are in accord with those recommended by OSHA, as in the 1989 revisions of the PELs.

Engineering measures: It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection..

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off-white powder

Odour: Mildly phenolic odour.

pH: NA

Relative density: NA

Flammability: Not flammable

Explosive properties: Not explosive.

Flash point: Not applicable, water based formulation.

Oxidizing properties: No oxidizing properties.

10. STABILITY AND REACTIVITY

Storage stability: 2, 4-D is stable at elevated temperatures and at low temperatures. The product is stable in aqueous solutions (after 18 hours at 20°C).

Incompatibility: Oxidizing agents..

11. TOXICOLOGICAL INFORMATION

Acute oral LD 50: 402.14 mg/kg in rats.

Acute dermal LD 50: 3 386.7 mg/kg in male rats.

Acute inhalation LC50: Data as for 2,4-D amine 600 SL

1.60 mg/l for rats at 24 hours.

Acute skin irritation: Did not provoke dermal irritation or corrosion.

Acute eye irritation: Causes severe eye and surrounding tissue damage.

Dermal sensitisation: Weak allergenicity potency.

Dermal sensitisation: Probability of sensitization is very low.

Carcinogenicity: The carcinogenic status of 2, 4-D is not clear.

Teratogenicity: 2, 4-D exposure is unlikely to be teratogenic in humans at expected exposure levels.

Mutagenicity: Non-mutagenic..

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds : LD50: 625 to 2000 mg/kg (bobwhite quail)

Fish : 96-hour LC50 :> 110 mg/l (Rainbow trout)

Daphnia : 48-hour EC50: >110 mg/l

Bees : Ingested: The 72-hour LD50 value is > 100 µg formulation/bee and the No-Observed-Effects Concentration is about 125 µg formulation/bee.

Contact: The 72-hour LD50 value is >200 µg formulation/bee and the Lemna gibba(EC50) : 0.58 mg/l

Bees: Oral: 72-hour LD50 >100 µg formulation/bee. No-Observed-Effects Concentration is about 200 µg formulation/bee.

Earthworms : The 14 day LC50 is about 682.5 mg of 2,4-D Amine 600 SL/kg soil dry weight. **NOEC :** 250 mg/kg soil dry weight.

FATE AND BEHAVIOUR IN SOIL:

Rate of degradation:

2,4-D residues peak approximately 14 days after application, and then degrade rapidly 14 to 42 days after application. At an application rate of 5.6 kg/ha., less than 5 % remains after 70 days. Small amounts remain after 385 days when applied at rates 11.2 and 22.4 kg/ha.

Adsorption /desorption:

As the amount of 2,4-D added to the soil increases, so the percentage of the total 2,4-D adsorbed to the soil decreases. Higher amounts of substance have lower probabilities of being sorbed.

FATE AND BEHAVIOUR IN WATER:

Rate and route of degradation:

DT50 varies between 10 and 15 days for 0.5 μ g/ml and 20 and 25 days for 7.0 μ g/ml.

FATE AND BEHAVIOUR IN AIR:

Rate and route of degradation:

2,4-D is subject to photo-oxidation by reaction with hydroxyl radicals, and has an estimated half-life of 1 day. Volatilization is negligible.

13. DISPOSAL CONSIDERATION**Controlled incineration:**

2,4-D is stable under normal temperatures and pressures. Contact with strong oxidisers may cause fire and explosion. The dimethylene salt decomposes at its melting point. Incineration at high temperatures (1000 °C) with sufficient residence time leads to complete detoxification and destruction and is the most environmentally acceptable method for disposal. Incineration at low temperatures could lead to the formation of chlorinated dibenzo-p-dioxins. The non-persistence and detoxification of 2,4-D in soil indicates that burial in non-crop areas away from water supplies, would be an acceptable method for the disposal of small quantities of 2,4-D, discharge in surface water and sewers should be avoided.

Package product wastes:

Combustible containers should be disposed of in pesticide incinerators or in specified landfill sites.

Noncombustible containers must be triple rinsed using the normal diluent at a volume equal to approximately 10 % of the drum's capacity. Add the rinsing mixture or use the recommended disposal methods. Containers must be punctured and disposed of in specified landfill areas.

14. TRANSPORT INFORMATION

UN Number: 3077

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,4-Dichlorophenoxyacetic acid)

Packaging Group: III

IMDG Marine pollutant: No

15. REGULATORY INFORMATION

Symbol: Xn , N

Indication of Danger: Harmful, Environmentally hazardous.

Risk phrases:

R 22 Harmful if swallowed.

R 36/37 Irritating to eyes and respiratory system.

R41 Risk of serious damage to eyes.

R43 May cause sensitization by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:

S2 Keep out of reach of children.

S13 Keep away from food, drink and animal feeding stuffs

S20/21 When using do not eat, drink or smoke.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S46 If swallowed, seek medical advice immediately and show this container or label.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheet..

16. OTHER INFORMATION

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact this company.

-- END OF MSDS --