Material Safety Data Sheet

Clodinafop-propargyl 4.5% + Isoproturon 55.5% WP

1. PRODUCT IDENTIFICATION

Common Name: Clodinafop-propargyl 4.5% + Isoproturon 55.5% WP
Chemical Family: aryloxyphenoxypropionate+ urea
Chemical name: prop-2-ynyl(*R*)-2-[4-(5-chloro-3-fluoropyridin-2-yloxy)phenoxy] propionate(Clodinafop-propargyl);
3-(4-isopropylphenyl)-1,1-dimethylurea; 3-p-cumenyl-1,1-dimethylurea.(Isoproturon)
Chemical Formula: $C_{17}H_{13}ClFNO_4$(Clodinafop-propargyl); $C_{12}H_{18}N_2O$(Isoproturon)
CAS No.:105512–06–9(Clodinafop-propargyl); 34123–59–6 (Isoproturon)
Product Use: Herbicide

2. COMPANY IDENTIFICATION

Exporter:
CHICO CROP SCIENCE CO., LTD.
Add: Rm 903, Unit C, Tian An International Bldg., Renmin South Rd., Shenzhen, China.
Tel: 86-755-22969199 Fax: 86-755-25919993
E-mail: chico1@chicocrop.com

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Registry Number	Typical Wt. % w/v
Clodinafop-propargyl	105512–06–9	4.5%
Isoproturon	34123–59–6	55.5
Inert ingredient	----	to balance

4. HAZARDS INDENTIFICATION

Emergency Overview

Off-white powder.

CAUTION!

KEEP OUT OF REACH OF CHILDREN
MAY CAUSE EYE AND SKIN IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION.

Potential Health effects

Dermal contact, ingest and inhalation of the product are the primary routes to induce potential adverse health effects. Inhalation of aerosol during application of the product as

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part of its end use is another potential route of entry. Slight eye and skin irritation may occur from contact with the liquid or spray mixture.

5. FIRST AID MEASURES

If swallowed: Induce vomiting by touching back of throat with finger and wash stomach. Never give anything by mouth to an unconscious person. Should be send to the hospital treatment immediately.

If in eye: Immediately rinse eyes for 15min with a large amount of running water. Hold eyelids apart to rinse the advice of a physician.

If on skin: Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

If Inhaled: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary.

Notes to Physician:

There is no specific antidote if this product is ingested. Treat symptomatically.

6. FIRE FIGHTING MEASURES

Fire and explosive Properties

Auto-Ignition Temperature	Not applicable
Flash Point	Not applicable

Extinguishing Media

Water fog, Carbon Dioxide, Dry Chemical, Foam and halogenated agents.

Fire Fighting Instructions

The product is not flammable. But if firing, fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear and self-contained breathing apparatus. Fire fighting equipment should be thoroughly decontaminated after use. Person who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

7. ACCIDENTAL RELEASE MEASURES

In Case Of Spill or Leak

Stop the leak, if possible. Ventilated the space involved. Absorb, sweep up, place in container for disposal. Shut off or remove all ignition sources. Prevent waterway contamination. Construct a dike to prevent spreading. Protect works with water spray. Collect run-off water and transfer to drums or tanks for later disposal.

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8. HANDLING AND STORAGE

Handling

Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye irritation. Do not breathe gas or allow to get in eyes, on skin, or on clothing. Wash hands, arms and face thoroughly with soap and warm water after use and before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Do not contaminate feed or food items. Keep out of reach of children

Storage

Store in a cool dry and air ventilating warehouse and protected from light. Avoid contacting with food, feedstuff and seed.

9. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye/Face Protection

Goggles and full face shield should be used when needed to prevent liquid from face and getting into the eyes.

Skin Protection

Avoid skin contact. Use chemical-resistant gloves, and wear long sleeves and trousers to prevent dermal exposure.

Respiratory Protection

Under normal handling conditions no respiratory protection is needed. However, if needed to prevent respiratory irritation, either a respirator approved for dusts and mists, or one approved for pesticides

10. PHYSICAL AND CHEMICAL PROPTERTIES

Color:	Off-white
Physical state:	Powder
Odor:	Not distinct odor
Melt point:	59.5 °C;(tech.,48.2–57.1 °C) (Clodinafop-propargyl); 158 °C; (tech., 153–156 °C) (Isoproturon)
Vapor pressure:	3.19×10^{-3} mPa (25 °C) (Clodinafop-propargyl) 3.15×10^{-3} mPa (20 °C); 8.1×10^{-3} mPa (25 °C) (Isoproturon)
Solubility in water	In water 4.0 mg/l (pH 7, 25 °C) (Clodinafop-propargyl) In water 65 mg/l (22 °C). (Isoproturon)
Solubility in organic solvents:	In methanol 180, acetone >500, toluene >500, n-hexane 7.5, n-octanol 21 (all in g/l, 25 °C). (Clodinafop-propargyl) In methanol 75, dichloromethane 63, acetone 38, benzene 5, xylol 4, n-hexane c. 0.2 (all in g/l, 20 °C). (Isoproturon)
Partition coefficient:	K_{ow} logP = 3.9 (25 °C) (Clodinafop-propargyl) K_{ow} logP = 2.5 (20 °C) (Isoproturon)

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11. STABILITY AND REACTIVITY

Stability

Mercury arc light at 25°C t0.5 = 3.2 h in bidistilled water. (Clodinafop-propargyl)

Very stable to light, acids, and alkalis. Hydrolytically cleaved by strong alkalis on heating. DT50 1560 d (pH 7). (Isoproturon)

Incompatibility

Not available.

Hazardous Decomposition Products

Not available

12. TOXICOLOGICAL INFORMATION

Clodinafop-propargyl

Acute Oral: Acute oral LD_{50} for male rats 1202, female rats 2785, mice >2000 mg/kg.
Acute Dermal: Acute percutaneous LD_{50} for rats >2000 mg/kg.
Irritation: Non-irritating to eyes and skin (rabbits).
Sensitisition: May cause skin sensitisation (guinea pigs).
Inhalation: LC_{50} (4 h) for rats 2.325 mg/m^3.
Long-term Studies: (2 y) for male rats 0.32 mg/kg b.w.; (18 mo) for male mice 1.1 mg/kg b.w..; (1 y) for dogs 3.3 mg/kg b.w. daily.

Isoproturon

Acute Oral: Acute oral LD50 for rats 1826–2417, mice 3350 mg/kg.
Acute Dermal: Acute percutaneous LD50 for rats >2000 mg/kg.
Irritation: Non-irritating to skin and eyes (rabbits).
Sensitisition: Not available.
Inhalation: LC50 (4 h) for rats >1.95 mg/l air.
Long-term Studies: (90 d) for rats 400, dogs 50 mg/kg diet; (2 y) for rats 80 mg/kg diet.

13. ECOLOGICAL INFORMATION

Ecotoxicological Information

Clodinafop-propargyl

Effects on Birds: LD_{50} (8 d) for mallard ducks >2000, bobwhite quail 1455 mg/kg.
Effects on Fish: LC_{50} (96 h) for rainbow trout 0.39, carp 0.46, catfish 0.43 mg/l.
Daphnia: LC_{50} (48 h) >60 mg/l.
Algae: EC_{50} (72–120 h) for *Scenedesmus subspicatus* >1.7, *Microcystis* >65.5, *Navicula*

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6.8 mg/l. EC_{50} for *Lemna* >2.4 ppm.

Bees: LD_{50} (48 h, oral and contact) >100 μg/bee.

Worms LC_{50} for earthworms 210 mg/kg.

Isoproturon

Effects on Birds: Acute oral LD_{50} for Japanese quail 3042–7926, pigeons >5000 mg/kg.

Fish: LC_{50} (96 h) for golden orfe 129, bluegill sunfish >100, guppies 90, rainbow trout 37, carp 193, catfish 9 mg/l.

Daphnia: LC_{50} (48 h) 507 mg/l. Algae LC50 (72 h) 0.03 mg/l.

Bees: Not toxic to bees; LD50 (48 h, oral) >50 to >100 μg/bee.

Worms: LC_{50} (14 d) for Eisenia foetida >1000 mg/kg dry artificial soil.

Other beneficial spp.: A dose of up to 1.5 kg/ha (as 'Arelon') was harmless to adult female Aleochara bilineata.

Environmental fate:

Clodinafop-propargyl

Soli/Environment In soil, undergoes rapid degradation to the free acid (DT50 <2 h) and then further to phenyl and pyridine moieties, which are bound to the soil and mineralised. The free acid is mobile in soil, but is further degraded with DT50 5–20 d; in practice, there is a negligible leaching potential.

Isoproturon

Animals: In rats, following oral administration, 50% is eliminated within the first 8 hours, predominantly in the urine.

Plants: In plants, degradation is mainly via hydroxylation of the isopropyl group to 1,1-dimethyl-3-[4-(2'-hydroxy-2'-propyl)phenyl]urea; N-dealkylation also occurs.

Soil/Environment: Undergoes enzymic and microbial demethylation at the nitrogen, and hydrolysis of the phenylurea to 4-isopropylaniline. DT50 in soil 6–28 d; rate of degradation increases 3× between 10 °C and 30 °C (sandy soil) and 10× in an organic soil over the same temperature range.

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14. DISPOSAL CONSIDERATIONS

Waste Disposal

Pesticide wastes are acutely hazardous. Do not reuse product containers. Dispose product containers, waste containers, residues according local health and environmental regulations.

15. TRANSPORT INFORMATION

UN number

ADR/RID:3077 IMDG: 3077 IATA: 3077

UN proper shipping name

ADR/RID: IMDG: IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Clodinafop-propargyl) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Isoproturon)

Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

Packaging group

ADR/RID: III IMDG: III IATA: III

Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

16. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

17. OTHER INFORMATION

The information contained herein relates only to the specific material identified. We believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the reliability or completeness of the information. Urge persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

Chico Crop Science Co., Ltd.

Date: Jan., 19, 2022

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