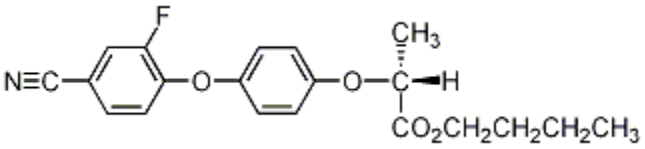
MATERIAL SAFETY DATA SHEET

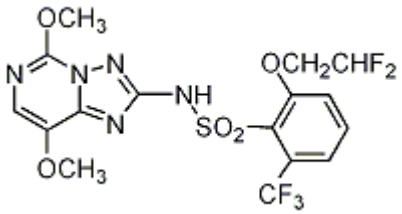
Cyhalofop-butyl 15% + Penoxsulam 3% OD

1. PRODUCT IDENTIFICATION/ COMPANY IDENTIFICATION

Product Name: Cyhalofop-butyl 15% + Penoxsulam 3% OD
Common Name: Cyhalofop-butyl + Penoxsulam
Chemical Family: aryloxyphenoxypropionate + triazolopyrimidine
Chemical Formula: $C_{20}H_{20}FNO_4$(Cyhalofop-butyl) ;
$C_{16}H_{14}F_5N_5O_5S$(Penoxsulam)
Chemical Structure:



(Cyhalofop-butyl)



(Penoxsulam)

Chemical Name: butyl (R)-2-[4-(4-cyano-2-fluorophenoxy)phenoxy]propionate (Cyhalofop-butyl)
-(2,2-difluoroethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c]pyrimidin-2-yl)-α,α,α-trifluorotoluene-2-sulfonamide;
2-(2,2-difluoroethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c]pyrimidin-2-yl)-6-(trifluoromethyl)benzenesulfonamide (Penoxsulam)
CAS No.: 122008–85–9 (Cyhalofop-butyl); 219714–96–2(Penoxsulam)
Product Use: Herbicide

COMPANY DETAILS:

Manufacturer and Exporter: CHICO CROP SCIENCE CO., LTD.
Address: Rm 903, Unit C, Tian An International Bldg, Renmin South Rd, Shenzhen, China.
Tel: 0086-0755-22969266 22969199
Fax: 0086-0755-25919993

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Registry Number	Typical Wt. w/w
Cyhalofop-butyl	122008–85–9	15%
Penoxsulam	219714–96–2	3%

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Inert	-	to balance

3. HAZARDS IDENTIFICATION

Emergency Overview

Gray liquid with not distinct odor.

CAUTION!

KEEP OUT OF REACH OF CHILDREN

MAY CAUSED SKIN SLIGHT IRRITATION

MAY CAUSED EYE SLIGHT IRRITATION

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

4. FIRST AID MEASURES

If swallowed: If ingestion is suspected. Induce vomiting 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 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 calcium disodium edentate as specific antidote, Treat symptomatically.

5. FIRE FIGHTING MEASURES

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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.

6. 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.

7. 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, arm 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.

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Storage

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

8. 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.

9. PHYSICAL AND CHEMICAL PROPTERTIES

Color:	Gray
Physical state:	liquid
Odor:	not distinct odor
Suspension rate:	90 min
Persistent foaming (after 1 min.):	60 max.
Wet sieve test(pass 5um sieve):	98 min.
Melting point	49.5 °C (Cyhalofop-butyl);212 °C (tech.) (Penoxsulam)
Boiling point:	Decomp. >270 °C (Cyhalofop-butyl); N/A (Penoxsulam)
Vapor pressure:	5.3×10^{-2} mPa (25 °C) (Cyhalofop-butyl); 9.55×10^{-11} mPa (25 °C) (Penoxsulam)
Solubility in water and solvents:	In water 0.44 (unbuffered), 0.46 (pH 5), 0.44 (pH 7.0) (all in mg/l, 20 °C). In acetonitrile >250, n-heptane 6.06,

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n-octanol 16.0, dichloroethane >250, methanol >250, acetone >250, ethyl acetate >250 (all in g/l, 20 °C). (Cyhalofop-butyl)

In water 0.0049 (distilled), 0.00566 (pH 5), 0.408 (pH 7), 1.46 (pH 9) (all in g/l, 19 °C). In acetone 20.3, methanol 1.48, octanol 0.035, DMSO 78.4, NMP 40.3, 1,2-dichlorethane 1.99, acetonitrile 15.3 (all in g/l, 19 °C). (Penoxsulam)

10. STABILITY AND REACTIVITY

Stability

Stable at pH 4, hydrolysed slowly at pH 7. At pH 1.2 or pH 9, decomposition is rapid. pKa 3.80 (for acid) (EU Rev. Rep.) F.p. 122 °C (closed cup) (EU Rev. Rep.) (Cyhalofop-butyl)
Stable to hydrolysis. Photolysis DT_{50} 2 d. Storage stability >2 y. (Penoxsulam)

Hazardous Polymerization

Does not occur.

Incompatibility

The product is not compatible with alkaline substances or Bensulfuron-methyl.

Hazardous Decomposition Products

Not available

11. TOXICOLOGICAL INFORMATION

Cyhalofop-butyl

Acute Oral: Acute oral LD_{50} for male and female rats, and for male and female mice >5000 mg/kg
Acute Dermal: Acute percutaneous LD_{50} for male and female rats >2000 mg/kg.
Irritation: Not a skin or eye irritant.
Sensitisition: Not a skin sensitiser (guinea pigs).
Inhalation: LC_{50} for rats >5.63 mg/l.
Long-term Studies: Not available.

Penoxsulam

Acute Oral: Acute oral LD_{50} for male and female rats, and for male and female

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Acute Dermal: Acute percutaneous LD_{50} for male and female rats >2000 mg/kg.

Irritation: Not a skin or eye irritant.

Sensitisition: Not a skin sensitiser (guinea pigs).

Inhalation: LC_{50} for rats >5.63 mg/l.

Long-term Studies: Not available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Cyhalofop-butyl

Birds: Acute oral LD_{50} for bobwhite quail and mallard ducks >5620 mg/kg. Dietary LC_{50} for bobwhite quail and mallard ducks >2250 ppm.

Fish: LC_{50} for rainbow trout >0.49, bluegill sunfish 0.76 mg/l. These values are at or above the aqueous solubility of cyhalofop-butyl.

Algae: EC_{50} (72 h) for Selenastrum capricornutum >1 mg/l; EC_{50} for Navicula sp. 0.64–1.33 mg/l. Soil and plant transformation products are less toxic to Selenastrum capricornutum (EU Rev. Rep.).

Bees: LD_{50} (oral and contact) >100 µg/bee. NOEC for honeybees >100 µg/bee.

Worms: LD_{50} (14 d) for earthworms >1000 mg/kg.

Penoxsulam

Birds: LD_{50} for mallard ducks >2000, bobwhite quail >2025 mg/kg b.w. Dietary LC_{50} (8 d) for mallard ducks >4310, bobwhite quail >4411 ppm.

Fish: LC_{50} (96 h) for common carp >101, bluegill sunfish >103, rainbow trout >102, silverside >129 mg/l. NOEC (36 d) for fathead minnows 10.2 mg/l. Daphnia EC_{50} (24 h and 48 h) >98.3 mg/l.

Daphnia: EC_{50} (24 h and 48 h) >98.3 mg/l.

Algae: EC_{50} (120 h) for freshwater diatoms >49.6, blue-green algae 0.49 mg/l; (96 h) for freshwater green algae 0.086 mg/l.

Bees: LD_{50} (48 h, oral) for honeybees >110 µg/bee; (48 h, contact) >100 µg/bee.

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Worms: LC_{50} (7 d and 14 d) >1000 mg/kg.

The above data is from studies conducted on the technical material.

Environmental Fate Information

Cyhalofop-butyl

Animals Rats, dogs, ruminants and poultry readily metabolise cyhalofop-butyl by hydrolysis to the acid. Depending on the animal, the acid may also break down to other metabolites. The acid and any additional degradates are then rapidly excreted. Residue levels of cyhalofop-butyl and its metabolites are low in milk, eggs and tissues.

Plants Rice tolerance is due to rapid metabolism to the inactive diacid (DT_{50} <10 h) and to subsequent formation of polar and non-polar metabolites. Susceptible grass sensitivity is due to rapid metabolism of cyhalofop-butyl to the herbicidally active monoacid.

Soil/Environment Laboratory metabolism and field dissipation studies show that cyhalofop-butyl is rapidly metabolised in soil and sediment/water systems to cyhalofop acid; in the field, cyhalofop-butyl DT_{50} 2–10 h in soil, <2 h in sediment/water. In turn, cyhalofop acid has DT_{50} <1 d in soil, c. 7 d in sediment/water. Cyhalofop-butyl is relatively immobile in soil adsorption studies. Mean Koc 5247, mean Kd 57.0 (4 soil types).

Penoxsulam

Animals Rapidly excreted, with low potential to accumulate.

Plants Following post-emergence foliar application to glasshouse plants, DT_{50} in indica rice 0.6 d, japonica rice 1.4 d, Echinochloa 4.4 d. Penoxsulam is first metabolised to the 5-hydroxy derivative, which is inactive. No penoxsulam residues are found in harvested rice grain (limit of determination 0.002 mg/kg).

Soil/Environment In water, degradation is mainly by photolysis and by biological means. Aqueous photolysis DT_{50} 2 d; soil photolysis DT_{50} 19 d. Under global water-seeded rice field conditions, DT_{50} (ave.) 6.5 d (4–10 d); under dry-seeded rice conditions, DT_{50} (ave.) 14.6 d (13–16 d). In EU, under water-seeded field conditions, DT_{50} (ave.) 5.9 d (5.6–6.1 d).

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In soil, degradation is mainly microbiological; lab. DT_{50} (aerobic, 20 °C) 32 d (22–58 d), (anaerobic, 20 °C) 6.6 d. Likely to be very mobile, but not very persistent, in either aqueous or terrestrial environments; produces 11 major degradation products, some of which are more persistent than penoxsulam (EPA Fact Sheet).

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Dispose in a safe manner in accordance with local/national regulations. Dispose of in a pesticide approved landfill in a chemical incinerator equipped with scrubbers

14. TRANSPORT INFORMATION

Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class :	9
UN No :	3082
Packing Group :	III

15. REGULATORY INFORMATION

This product is not listed as carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer(IARC), or the Occupational Safety and Health Administration (OSHA).

16. 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: Feb., 08, 2022

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