

## Material Safety Data Sheet

### Cyhalofop-butyl 12%+Metamifop 8% EC

#### 1. PRODUCT IDENTIFICATION

Product Name: Cyhalofop-butyl 12%+Metamifop 8% EC  
 Common Name: Cyhalofop-butyl + Metamifop  
 Chemical Family: Aryloxyphenoxypropionate (Cyhalofop-butyl)  
 N/A. (Metamifop)  
 Chemical Formula: C<sub>20</sub>H<sub>20</sub>FNO<sub>4</sub> (Cyhalofop-butyl)  
 C<sub>21</sub>H<sub>22</sub>ClN<sub>3</sub>O<sub>2</sub> (Metamifop)  
 Chemical Name: butyl (*R*)-2-[4-(4-cyano-2-fluorophenoxy)phenoxy]propionate  
 (Cyhalofop-butyl)  
 (*R*)-2-[4-(6-chloro-1,3-benzoxazol-2-yl)phenoxy]-2'-fluoro-N-methylpropionanilide (Metamifop)  
 CAS No.: 122008-85-9 (Cyhalofop-butyl)  
 256412-89-2 (Metamifop)  
 Product Use: Herbicide

#### 2. COMPANY IDENTIFICATION:

##### Exporter:

CHICO CROP SCIENCE CO., LTD.

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 Shenzhen, China.

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#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>CAS Registry Number</u>	<u>Typical Wt. w/w</u>
Cyhalofop-butyl	122008-85-9	12%
Metamifop	256412-89-2	8%
Inert	---	to balance

#### 4. HAZARDS IDENTIFICATION

##### Emergency Overview

Light yellow transparent liquid.

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.

## 5. FIRST AID MEASURES

If swallowed: People who take it by mistake drink plenty of warm water to induce vomiting. 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. Consult a doctor.

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, Treat symptomatically.

## 6. FIRE FIGHTING MEASURES

### Fire and explosive Properties

Auto-Ignition Temperature	Not applicable
Flash Point	Not available

### Extinguishing Media

Water fog, Carbon Dioxide, Dry Chemical, Foam.

### Fire Fighting Instructions

The product is not flammable. If firing, fire fighters and others who may be exposed to products of combustion should wear full firefighting turn out gear and self-contained breathing apparatus. Firefighting 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. Ventilate 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.

## 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, 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.

### **Storage**

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

Color:	Light yellow
Physical state:	Liquid
Odor:	No obvious odor
pH:	4.0-7.0

Melting point:	49.5 °C (Cyhalofop-butyl); 77.0–78.5 °C (Metamifop).
Boiling point:	Decomp. >270 °C (Cyhalofop-butyl); N/A (Metamifop).
Vapor pressure:	$5.3 \times 10^{-2}$ mPa (25 °C) (Cyhalofop-butyl); $1.51 \times 10^{-1}$ mPa (25 °C) (Metamifop)
Solubility in water:	In water 0.44 (unbuffered), 0.46 (pH 5), 0.44 (pH 7.0) (all in mg/L, 20 °C). (Cyhalofop-butyl); In water $6.87 \times 10^{-4}$ g/l (pH 7, 20 °C). (Metamifop).
Solubility in organic solvents:	In acetonitrile >250, <i>n</i> -heptane 6.06, <i>n</i> -octanol 16.0, dichloroethane >250, methanol >250, acetone >250, ethyl acetate >250 (all in g/l, 20 °C). (Cyhalofop-butyl); In acetone, 1,2-dichloroethane, ethyl acetate, methanol and xylene >250, <i>n</i> -heptane 2.32, <i>n</i> -octanol 41.9 (all in g/l, 20 °C). (Metamifop).
Partition coefficient:	$K_{ow} \log P = 3.31$ (25 °C) (Cyhalofop-butyl); $K_{ow} \log P = 5.45$ (pH 7, 20 °C) (Metamifop).

## 11. STABILITY AND REACTIVITY

### Stability

Stable at pH 4, hydrolysed slowly at pH 7. At pH 1.2 or pH 9, decomposition is rapid. (Cyhalofop-butyl);  
Stable at 54 °C. (Metamifop)

### Hazardous Polymerization

Does not occur.

### Incompatibility

The product is not compatible with strong bases, strong acids agents.

### Hazardous Decomposition Products

Not available

## 12. TOXICOLOGICAL INFORMATION

<b>Acute Oral:</b>	Acute oral LD <sub>50</sub> for male and female rats, and for male and female mice >5000 mg/kg. (Cyhalofop-butyl); Acute oral LD <sub>50</sub> for rats >2000 mg/kg. (Metamifop)
<b>Acute Dermal:</b>	Acute percutaneous LD <sub>50</sub> for male and female rats > 2000 mg/kg. (Cyhalofop-butyl); Acute percutaneous LD <sub>50</sub> for rats >2000 mg/kg. (Metamifop)
<b>Irritation:</b>	Not a skin or eye irritant. (Cyhalofop-butyl); Not a skin irritant; slightly irritating to eyes. (Metamifop)
<b>Sensitization:</b>	Not a skin sensitizer (guinea pigs). (Cyhalofop-butyl).

May cause sensitisation by skin contact. (Metamifop)

**Long-term Studies:** Non-mutagenic in Ames, DNA repair and micronucleus tests. Not teratogenic. In in vivo cytogenetic studies, no induction of structural chromosomal aberration observed. Rat and rabbit studies indicate cyhalofop-butyl is not teratogenic. (Cyhalofop-butyl).  
Studies showed no evidence of carcinogenicity and mutagenicity to rats and rabbits. (Metamifop)

## 13. ECOLOGICAL INFORMATION

### Ecotoxicological Information

#### Cyhalofop-butyl

The high toxicity of cyhalofop-butyl to fish and other aquatics is mitigated by the rapid degradation to less-toxic metabolites.

Effects on Birds: Acute oral LD<sub>50</sub> for bobwhite quail and mallard ducks >5620 mg/kg. Dietary LC<sub>50</sub> for bobwhite quail and mallard ducks >2250 ppm.

Effects on Fish: LC<sub>50</sub> for rainbow trout > 0.49, bluegill sunfish 0.76 mg/L. These values are at or above the aqueous solubility of cyhalofop-butyl.

Effects on Daphnia: No data available.

Effects on Algae: EC<sub>50</sub> (72 h) for *Selenastrum capricornutum* >1 mg/l; EC<sub>50</sub> for *Navicula* sp. 0.64–1.33 mg/l. Soil and plant transformation products are less toxic to *Selenastrum capricornutum* (EU Rev. Rep.).

Effects on Bees: LD<sub>50</sub> (oral and contact) >100 µg/bee. NOEC for honeybees >100 µg/bee.

#### Metamifop

Effects on Birds: No data available.

Effects on Fish: LC<sub>50</sub> (96 h) for rainbow trout 0.307 mg/l.

Effects on Daphnia: EC<sub>50</sub> (48 h) 0.288 mg/l.

Effects on Algae: EC<sub>50</sub> (48 h) >2.03 mg/l.

Effects on Bees: LD<sub>50</sub> (contact and oral) >100 µg/bee.

### Chemical Fate Information

**Animals:** Rats, dogs, ruminants and poultry readily metabolize 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. (Cyhalofop-butyl)  
No data available. (Metamifop)

**Plants:** Rice tolerance is due to rapid metabolism to the inactive diacid (DT<sub>50</sub> <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. (Cyhalofop-butyl)

No data available. (Metamifop)

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<sub>50</sub> 2–10 h in soil, <2 h in sediment/water. In turn, cyhalofop acid has DT<sub>50</sub> <1 d in soil, c. 7 d in sediment/water. Cyhalofop-butyl is relatively immobile in soil adsorption studies. Mean K<sub>oc</sub> 5247, mean K<sub>d</sub> 57.0 (4 soil types). (Cyhalofop-butyl)

Soil degradation is both chemical and microbial; DT<sub>50</sub> 40–60 d (25 °C). Aqueous photolysis produces seven detectable metabolites; DT<sub>50</sub> 18–120 d, depending on conditions. (Metamifop)

## 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: 3082.

Class and subsidiary risk: 9

Packing group: III

## 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 believe 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.