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Material Safety Data Sheet

1. Chemical Product Identification

Product Name: Bispyribac-sodium 4%+ Cyhalofop-butyl 16% OD

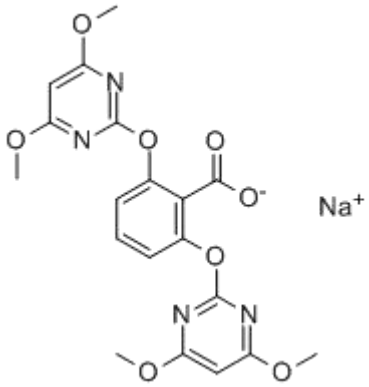
Product Name 1: Bispyribac-sodium

Molecular Formula: $C_{19}H_{17}N_4NaO_8$

CAS NO.: 125401-92-5

Molecular Weight: 452.4

Structural Formula：



Chemical name: Sodium 2,6-bis(4,6-dimethoxypyrimidin-2-yloxy)benzoate

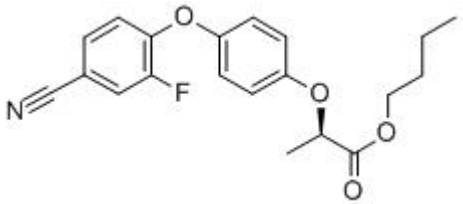
Product Name2: Cyhalofop-butyl

Molecular Formula: $C_{16}H_{12}FNO_4$

CAS NO.: 122008-85-9

Molecular Weight: 357.4

Structural Formula：



Chemical name: butyl (R)-2-[4-(4-cyano-2-fluorophenoxy)phenoxy]propionate

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Bispyribac-sodium	125401-92-5	4
Cyhalofop-butyl	122008-85-9	16
Other ingredients	-	80.0

3. Hazards Identification

3.1 Classification of the substance or mixture

Slightly toxic class

3.2 GHS classification：

Hazard statement(s)

H303 Harmful if swallowed.

H313 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statement(s)

P264 Thoroughly clean the skin after handing

p280 Wear protective gloves / eye protection / face protection.

Measure

For measure see section 8

4. First Aid Measures

4.1 Description of first aid measures

General advice

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

If inhaled

If breathed in, move person into fresh air. If you feel that it is difficult to breath, pleas e offer oxygen. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

Immediately take off the clothes, flow of water washing using the soap or special dete rgent.

In case of eye contact

Flush eyes with water as a precaution. You should rinse the eyes for 15 minutes if it s plashes in. If the eyes are still very afflictive, please seek medical attention.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Co nsult a physician. Please drink enough water to spit if you accident drink it, or else co nsult a physician.

4.2 Most important symptoms and effects, both acute and delayed
No data available

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. Fire-Fighting Measures
5.1 Extinguishing media
Suitable extinguishing media
Extinguish using water fog, fine water spray, carbon dioxide or foam.

5.2 Special hazards arising from the substance or mixture
oxycarbide, nitrogen oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4 Further information
The product itself does not burn.

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. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suit able, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. Handling And Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes . To prevent dust and aerosol generation.
Provide appropriate exhaust ventilation at places where dust is formed. Fire protection measures in general

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Hygroscopic

7.3 Specific end use(s)

no other specific uses are stipulated

8. Exposure Controls / Personal Protection

8.1 The allowable concentration

The maximum allowable concentration.
There is no known exposure limits prescribed by the state

8.2 Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use.
Use proper glove removal technique (without touching glove's outer surface) to avoid skin contactwith this product.
Dispose of contaminated gloves after use in accordance with applicable laws and goo d laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/68 6/EEC and the standard EN 374 derived from it.

Body Protection

Impervious clothing.
The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

Use respirators and components tested and approved under appropriate government st andards such as NIOSH (US) or CEN (EU).

9. Physical And Chemical Properties

Appearance: Similar white suspended liquid
pH: 5.56
Specific gravity: NA
Suspensibility, %: 92
Fineness, % (Through 325 mesh sieve): 97

10. Stability And Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidants

11. Toxicological Information

Acute Toxicity

Ingestion: Slightly Toxic Oral (LD50 Rat): >5000 mg/kg body weight
Dermal: Slightly Toxic Dermal (LD50 Rabbit): > 2000 mg/kg body weight
Inhalation: Practically Non-Toxic Inhalation (LC50 Rat): >3.35 mg/L - 4 hours
Eye Contact: Mild Irritating (Rabbit)
Skin Contact: Non Irritating (Rabbit)
Skin Sensitization: Non sensitization

Subchronic Toxicity Studies:

Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD was tested in rats at dose levels of 0, 100, 1000, 10000 and 20000 ppm for 13 weeks. The NOEL was 100 ppm (7.2 mg/kg/day) in males and 1000 ppm (79.9 mg/kg/day) in female rats. Effects observed at higher doses included histopathological changes in the liver, urinary bladder and the bile duct; increased serum GOT, GPT and ALP; and reduced body weight gain.

Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD was also tested in doges for 13 weeks at doses of 0, 30, 100 and 600 mg/kg/day. The NOEL was 100 mg/kg/day. Vomiting, salivation and loose stools were observed in animals exposed to 600 mg/kg/day. Histopathological changes in the liver were also noted in males at 600 mg/kg/day.

Chronic/ Carcinogenicity:

A dietary study in rats and one in mice were conducted to assess the potential chronic toxicity and/or Carcinogenicity of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD

In rats, systemic toxicity was noted at 100 mg/kg and higher as a persistent decreased body weight gain, food consumption and food efficacy along all periods of treatment. In many cases, these differences could be related to the unpalatability of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD to rats. There was also an increase in blood urea nitrogen in males and females since 25 weeks, it is an effect of treatment however there was no detectable adverse influence of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD upon hepatic or renal morphology. No evidence of carcinogenicity at the dose level tested was observed. For chronic toxicity, the NOAEL was 10.9 mg/kg/day and LOAEL was 194.5 mg/kg/day based on decreased body weight gains, food consumption and increased blood urea nitrogen.

Reproduction Toxicity:

In a two-year generation reproduction study, the administration of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD at 1000 mg/kg bw/day produced parent toxicity manifested by bodyweight decrease in F0 and F1 males within pre-mating period and F1 females in all periods studied. At macroscopic inspection, the liver appeared increased in many animals of the higher dosing groups. In this sense, the liver weight was increased and was statistically significant in males and females of the F0 generation at 100 and 1000 mg/kg dose levels, and for both sexes in the F1 generation at 1000 mg/kg and only in males dosed with 100 mg/kg. Histologically, the liver showed enlargement of centrilobular hepatocytes and in males, necrosis as the main findings. The kidney of the males dosed with 1000 mg/kg and in F0 and F1 generations were increased, revealing eosinophilic bodies in proximal tubular epithelium and atrophic tubules consisting of regenerated epithelium. Other organs were affected by the dose of 1000 mg/kg bw/day, such as pituitary, adrenal, testis, but no histopathological lesions could be observed.

Teratogenicity & Reproduction:

The developmental study performed with rats showed that the NOAEL for maternal toxicity was 1000 mg/kg bw/day based on the small decreased bodyweight gain for the gestational period at higher dose of 1000 mg/kg. The dose of 1000 mg/kg produced an incidence of runt fetuses, decreased foetal bodyweight as well as a statistical increase in sternebral variations, considering therefore a NOAEL for developmental toxicity of

1000 mg/kg bodyweight/day. Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD seems not to be teratogenic at levels up to 1000 mg/kg.

Mutagenicity:

Ames Test:

The test article, Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD, was tested in Salmonella Assay with the tester trains of TA97, TA 98, TA100 and TA102 in the presence and absence of arocolor-induce liver homogenate fraction (S9 mix). The concentration of the test substance were 5000, 500, 50, 5 and 0.1 μg/plate. Positive and negative controls were performed at the same time with the same method. All the dose levels and the controls were planted in triplicate. No positive results were found with all the tester strains in the test. Based on the results and the mutation toxicity grading criteria in the Toxicological Test Method of Pesticide for registration of P.R. China, the test article, Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD, is non-mutagenic in this system.

Bone Marrow Polychromatic Erythrocyte Micronucleus Test:

The test substance, Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD, was administered by gavage using a stomach tube twice at 24 hours intervals. The dose levels in treated groups were 250 mg/kg, 500 mg/kg and 1000 mg/kg. Positive control substance was cyclophosphamide. Its dose level was 50 mg/kg. Negative control substance was solvent, vegetable oil. After 6 hours of the last administration, the entire mice were sacrificed. The bone marrow was extracted. Prepared the smear, stained and got them microscopic examination. There was no statistic significance of frequency of micronucleated polychromatic erythrocytes (Polychromatic erythrocytes among total proportion of erythrocytes) between treated groups and negative group. It can be concluded that the test substance, Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD, does not have the potential to cause cytogenetic damage which resulted in the formation of micronucleus containing lagging chromosome fragments or whole chromosomes.

Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD does not have potential of mutagenicity in mouse.

Spermatogonial Chromosome Aberration Test:

Spermatogonial chromosome aberration test of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD was conducted with mice. The mice were treated with test material at 6, 12 and 24 mg/kg (po). Positive control (1.5 mg/kg mitomycin C, ip) and negative control (sodium carboxymethyl cellulose, po) were performed at the same time with the method.

Mice treated with Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD at 7, 14 and 28 mg/kg showed no difference of breakage, translocation, X-Y and autosomal univalent, and aberration frequency compared with those of negative controls ($P > 0.05$), and the later showed significant differences compared with those positive controls ($P < 0.01$). The study

suggested that the cytogenetic of Cyhalofop-butyl 16%+Bispyribac-sodium 4% OD was negative in the test system.

12. Ecological And Ecotoxicological Information

Summary of Effects

Non toxic to aquatic organisms, bees and birds.

Eco-Acute Toxicity

Daphnia magna	:	TLm48 >134.5 mg/l
Avian Toxicity	:	Japanese quail Acute LD50 (Oral) 2710 mg/kg;
Bees	:	LC50 (Oral) > 200 µg/bee
Earthworm Toxicity:		Acute LC50 >1000 ppm (14 days exp. for *Eisenia foetida*)
Environmental Fate		
Animals	:	>95% of dose applied to rats was excreted in urine and Faces within 7 d.
Plants	:	Following application to foliage and soil at 5-leaf stage of Rice plants, *c.* 10% of carbon label was distributed between straw and roots at harvest.
Soil/Environment	:	In soil, DT50 <10 d (flooded and upland conditions).

13. Disposal Considerations

13.1 Waste treatment methods

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a l icensed professional waste disposal service to dispose of this material.
Send to the environment & Sanitation department or special place with burning.
Contaminated packaging Dispose of as unused product.

14. Transport Information

14.1 UN number :3082
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class (es) : ADR/RID: - IMDG: - IATA: -

14.4 Packaging group :ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

15. Regulatory Information

15.1 Safety, health and environmental

regulations/legislation specific for the substance or mixture

Disposition should refer to National and Local's relate law. If applicable, the products complies with the requirements of" Regulations on the safety administration of dangerous chemicals"(Issued on January 9, 2002 by the State Council)

16. Other Information

The data given here is based on current knowledge and experience. The purpose of this safety data sheet is to describe the product in terms of its safety requirements. The data does not signify and warranty with regard to the product’s properties.