



MATERIAL SAFETY DATA SHEET

Clethodim 240g/L EC

1. PRODUCT IDENTIFICATION

Product Name: Clethodim 240g/L EC
Product Class: Herbicide
Chemical family: Cyclohexanedione oxime
Chemical Name: (5*RS*)-2-[(*E*)-1-[(2*E*)-3-chloroallyloxyimino]propyl]-5-[(2*RS*)-2-(ethylthio)propyl]-3-hydroxycyclohex-2-en-1-one
Molecular Formula: C₁₇H₂₆ClNO₃S
Formulation: Emulsifiable Concentrate (EC)

Supplier: Shenzhen Yufull Industries Co., Ltd

Add: Room 1311, Bldg A, Liu Jin Square, No3038, Bao'an North Road, Sungang Street, Luohu District, Shenzhen, China.

Tel: 0086-755-25840455

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Website: <http://www.yufull.com>

2. HAZARDS IDENTIFICATION

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Extra labelling to display Extra classification(s) to display

Hazard pictograms (CLP) :



Signal word (CLP) : Warning

Hazard statements (CLP) :

H315 - Causes skin irritation

H319 - Causes serious eye irritation



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H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

P264 - Wash hands thoroughly after handling

P273 - Avoid release to the environment

P280 - Wear protective clothing, protective gloves

P302+P352 - IF ON SKIN: Wash with plenty of water

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P321 - Specific treatment (see the instruction on this label)

P332+P313 - If skin irritation occurs: Get medical advice/attention

P337+P313 - If eye irritation persists: Get medical advice/attention

P362+P364 - Take off contaminated clothing and wash it before reuse

P391 - Collect spillage

P501 - Dispose of contents/container according to local regulation EUH-statements :

EUH208 - Contains Clethodim(99129-21-2). May produce an allergic reaction

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance	CAS No.	Proportions
Clethodim	99129-21-2	240g/L min
Other ingredient	-	Up to 1000g/L

4. FIRST AID MEASURES

General: Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

If swallowed: If swallowed, immediately give a large amount of water to drink. Rinse the mouth with clean water. Do not induce vomiting. If vomiting occurs spontaneously, rinse the mouth with clean water and administer more water. Never give anything by mouth to an unconscious person. Get medical attention immediately.



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If in eyes: Flush eyes with plenty of clean water, occasionally lifting upper and lower eye lids, for at least 15 minutes. Check for, and remove if present, any contact lenses after the first 5 minutes of flushing. Get medical attention should any symptoms develop or persist.

If on skin or clothing: Remove all contaminated clothing and leather items. Wash the skin thoroughly with soap and water, and rinse the skin with large quantities of clean water. Do not rub the skin hard during washing. Wash any contaminated clothing before reuse.

If inhaled: Remove patient to fresh air. Get medical attention should any symptoms develop or persist.

Note to physician: Symptomatic treatment (This material contains light hydrocarbon liquid and an aspiration hazard may exist). There is no specific antidote.

5. FIRE FIGHTING MEASURES

Flammable limits:

Lower explosion limit: not determined

Upper explosion limit: not determined

Hazardous combustion products: The products of combustion (burning of the product and/or packaging) in the event of a fire are expected to be toxic and to cause irritation of the respiratory tract or eyes. Inhalation of this smoke (or fumes, gases or vapours) can be harmful. Avoid inhalation. Thermal decomposition of the product and surrounding goods, packaging, etc., may release toxic fumes and other harmful compounds

Extinguishing media: Foam CO₂ or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

Fire and Explosion Hazards: Isolate the fire area. The product may burn if exposed to heat or flame. The packaging and surrounding goods (if any) in the immediate area must be considered.

Fire-fighting instructions: Remove spectators from the area. Keep up-wind of the fire. Avoid inhalation of vapours and fumes from burning material. Fight the fire from maximum distance. Remove containers from the fire area if possible and only if this can be done without personal risk. Water can be used to keep intact (not burning) cool and thus help prevent the containers from exploding due to the heat.

Protective equipment for firefighters: Wear full protective clothing and a self-contained breathing



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apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with the skin and eyes. Do not breathe fumes. Wear personal protective clothing (overall, boots, gloves). Keep personnel and spectators up-wind of the spillage.

Environmental precautions: Isolate the spillage area. Keep unprotected persons and animals out of the area. Dyke in order to confine the spillage and prevent contamination of any natural water course or water body, as well as entry of the product into sewers or drains. Keep the spillage out of waterways, drains, streams, rivers and dams.

Method for cleaning up: Absorb with a non-combustible absorbent material such as clay, sand or soil. Vacuum, shovel or pump waste into a drum and label the drum for disposal of the contents.

7. HANDLING AND STORAGE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Read entire label. Use strictly in accordance with label precautionary statements and directions. DO NOT USE OR STORE near flame, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA. Keep container closed. DO NOT weld, heat or drill container. Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid. Before entry into confined spaces that may have contained hazardous material, determine concentrations and take appropriate measures for personal protection. Material presents a hazard that may require personal protective equipment for entry. Keep pesticide in original container. Do not store or transport near food or feed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment (PPE):

To reduce personnel exposure to this product, it is recommended to use appropriate personal protective clothing when handling this product. Do not wear leather clothing. Respiratory Protection: For periods of prolonged exposure, wear a face mask or respirator. Hand Protection: Wear chemical resistant gloves when handling the concentrate. Eye Protection: Wear a face shield when handling the concentrate. Skin



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and Body Protection: Wear a long sleeved overall and boots.

User safety recommendations: Ensure thorough ventilation when handling the concentrate. Do not eat, drink, smoke or go to the bathroom while handling this product. Wash face, hands and exposed skin after handling this product. Wash contaminated clothing after exposure to this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour	: Yellow homogeneous liquid
Odour	: Aromatic
Melting Point	: 185-188°C
Vapor pressure	: 2.8×10^{-9} mPa (25°C)
Flammability	: Non-flammable
Explosive properties	: Not expected to be explosive
Corrosiveness	: Non-corrosive
pH	: 4.0-7.0
Water solubility	: Emulsion in water

10. STABILITY AND REACTIVITY

Conditions to avoid: Product has a shelf life of 2 years provided it is stored in the unopened, original and undamaged container, and it is not exposed to temperature extremes or direct sunlight. oxidizing agents

Hazardous decomposition products: Unlikely to occur.

Incompatible materials: Strong alkalis, Heat and ignition sources.

Hazardous reactions: Based on its structural properties the product is not classified as oxidizing.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Route of application	Animal	Clethodim 240g/L EC
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Acute oral LD ₅₀	Rat	>2000 mg/kg
Acute Dermal LD ₅₀	Rat	>2000 mg/kg
Acute Inhalation (LC ₅₀)	Rat	>5.1 mg/L
Skin irritation	Rabbit	Mild irritating
Eye irritation	Rabbit	Moderate irritating
Skin sensitization	Guinea pig	Not a skin sensitizer

SUBCHRONIC: Compound-related effects, noted at high doses of Clethodim Technical in sub chronic toxicity studies conducted in mice, rats, and dogs, were decreased body weights, increased liver size (increased liver weights and hypertrophy) and anemia (decreased hemoglobin, hematocrit, or erythrocyte counts).

CHRONIC/CARCINOGENICITY: In chronic studies with Clethodim Technical in the mouse, rat, and dog, similar effects as seen in subchronic have been noted. No treatment related increases in neoplasm were observed in any study.

TERATOLOGY/DEVELOPMENTAL TOXICITY: Developmental toxicity in rats and rabbits was observed only at maternally toxic dose levels of Clethodim Technical.

REPRODUCTION: No reproductive toxicity was observed in a study with rats exposed to Clethodim Technical for two generations.

MUTAGENICITY: Clethodim Technical was negative in the following genotoxicity assays: microbial reverse mutation (Ames Assay), in vitro chromosome aberration assay in Chinese Hamster Ovary Cells, in vivo chromosome aberration assay in Rat Bone Marrow Cells and in vivo Unscheduled DNA Synthesis Assay. Clethodim Technical does not present a genetic hazard to intact animal systems.

12. ECOLOGICAL INFORMATION

The following information is for the active ingredient, Clethodim.

Avian Toxicity: The acute toxicity of Clethodim Technical to birds is very low.

Bobwhite quail oral: LD₅₀ > 2 g/kg

Bobwhite quail dietary: LC₅₀ > 6,000 ppm

Mallard duck dietary: LC₅₀ > 6,000 ppm



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No reproductive effects were observed in mallard ducks exposed to 1,000 ppm of Clethodim Technical. In Bobwhite quail, a slight decrease in viability of embryos of eggs from females exposed to 1,000 ppm was observed. A NOEL was established at 300 ppm of this study.

Aquatic Organism Toxicity: Clethodim Technical is only slightly toxic to freshwater fish and practically nontoxic to Daphnia.

Rainbow Trout: 96-hour LC50 = 67 mg/L

Bluegill Sunfish: 96-hour LC50 = 120 mg/L

Daphnia magna: 48-hour LC50 > 120 mg/L

Other Non-Target Organism Toxicity: Clethodim Technical was found to be nontoxic to adult worker bees at the highest dose tested, 100 micrograms/bee.

Do not discharge product into the environment without control.

13. DISPOSAL CONSIDERATION

All drums may be returned to the manufacturer provided they are clean, serviceable, have bungs and plugs in place and are free of surface chemical residues. Unserviceable drums should be triple rinsed with water, have the liner removed (where applicable) and be crushed to prevent re-use. Disposal of drums and liners may be permitted into a tip after approval from the local authority.

DISPOSAL METHOD: Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

EMPTY CONTAINER: Non-returnable containers that held this material should be cleaned, prior to disposal, by triple rinsing. Containers which held this material may be cleaned by being triplerinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

14. TRANSPORT INFORMATION

地址：深圳市罗湖区宝安北路 3038 号宝能慧谷 A 栋 1311 室

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UN No.	3082
IMCO Class	9
Packing Group	III
Proper Shipping Name	Environmentally hazardous substance, liquid, N.O.S
Environmental risk	Marine pollutant

15. REGULATORY INFORMATION

This product had been registered according to Requirements of the Pesticide Registration Document, Ministry of Agriculture, PRC.

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-