

SAFETY PRECAUTIONS:

1. Handle with care. Avoid splashing/contact. Poisonous by swallowing, inhalation and contact with skin and eyes.
2. Wear protective clothing, boots, rubber gloves and safety goggles.
3. KEEP OUT OF THE REACH OF CHILDREN.
4. KEEP APART FROM FOOD AND FOODSTUFFS.
5. KEEP UNDER LOCK AND KEY.
6. Do not inhale fumes or spray mist.
7. Avoid contact with skin and eyes.
8. Prevent spray drift onto other crops, grazing, rivers, dams or other areas not under treatment.
9. Do not eat, drink or smoke whilst mixing or applying or before washing hands and face and changing clothes.
10. Wear protective clothing, boots, rubber gloves and face shield when handling the product.
11. Wash contaminated clothing daily.
12. FLAMMABLE – keep away from open flame.
13. Toxic to fish and birds.
14. Wash with soap and water after use and accidental skin contact.
15. Clean all equipment thoroughly after use. Dispose of wash water where it will not contaminate crops, grazing, rivers, dams and boreholes.
16. Triple rinse empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the described manner.
17. Destroy the empty container by perforating and flattening and dispose of it in a safe manner.
18. Never re-use the empty container for any other purpose whatsoever.

SYMPTOMS OF POISONING:

Vomiting, anxiety, salivation, shivering, convulsions and skin, eye, nose and throat irritations.

FIRST AID:

Remove patient from source of exposure.

Inhalation: Loosen clothing around neck and chest.

Skin: Immediately remove all contaminated clothing and wash skin exposed to insecticide with plenty of soap and water.

Eye: Wash eyes with large amounts of water for at least 15 minutes. Ingestion: Induce vomiting. Take patient to doctor with this label.

NOTE TO PHYSICIAN:

In case of oral intake, vomiting should be induced and gastric lavage should be applied with care. Vomiting should not be induced after 10 symptoms have developed. In the case of systemic intoxication, symptomatic and supportive treatment should be applied. For shivering and spasm intravenous application of appropriate initial doses of Diphenhydantoin or Phenobarbital is indicated. Depression can occur after the stimulation. If the nervous system is affected, then nervous system stimulants can be used. Patient should be kept under observation to maintain breathing, cardio-vascular and kidney functions. The inhalation of the solvent present in the formulation can be the most important hazard, as it can cause chemical pneumonia.

ANTIDOTE: No known antidote.**COMPATIBILITY:**

It is preferable to use this product on its own. It is, however compatible with most EC formulations (e.g. cotton acaricides). Do not mix with highly alkaline materials, e.g. hydrated lime and lime sulphur.

SAFETY PRECAUTIONS**Empty container disposal**

Invert the empty container over the spray tank or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of the container. Add the rinsings to the contents of the spray tank. Destroy the empty container by perforation and flattening. Return to supplier for recycling. DO NOT use for any other purpose. Dispose of the wash water at a site for the disposal of pesticides.

Decontamination of sprayer

Clean applicator thoroughly after use and ensure that all traces of FENVALERATE 20% EC are removed. Make use of the following method;

(a) Drain and rinse tank, spray boom and hoses with clean water for at least 10 minutes

(b) Fill tank with clean water and add it to 1 litre household bleach (5%) or 1.5 Litres of household bleach (3.5%) per 200 Litre of water. Rinse hoses and spray boom and leave in tank for 15 minutes whilst agitating. Drain through nozzle outlets.

(c) Repeat step (b) and thereafter, rinse thoroughly with clean water and dispose of the wash water at a site designated for the disposal of pesticides.

Manufactured by:

NOVAAGRO (HK) LTD
6TH FLOOR, WYNDHAM PLACE,
44 WYNDHAM STREET,
CENTRAL HONG KONG

FENVALERATE 20% EC

Insecticide

Reg No.10-D-114-47

500ml



Composition mass/volume
Fenvalerate.....20%
Inert ingredients.....80%

Chemical group: pyrethroid

**A CONTACT, SYNTHETIC PYRETHROID INSECTICIDE
FOR THE CONTROL OF A RANGE OF INSECT PESTS IN
COTTON**

**TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL
OF THIS SUBSTANCE IS AN OFFENCE**

KEEP OUT OF REACH OF CHILDREN



1. Triple rinse clean container after use
2. Punctures holes in bottom
3. Return to Maguires Recycling Facilitator / Return to nearest recycling facility

DIRECTIONS FOR USE

PEST	APPLICATION	DOSAGE	APPLICATION DIRECTIONS
Cutworm immediately after planting	(i) Cup Drench	20ml/100 litres water	Apply 30ml of the mixture to each seedling so as to wet stem and soil surrounding base of seedling.
	(ii) Spray	32ml/100 litres water	Apply 500 litres spray mix per hectare in a 30cm swath over the plants.
	(iii) incorporation with pre-emergence herbicide applicable over seedlings	160ml/ha	Mix 160ml of Fenvalerate 20%EC in the quantity of herbicide mix required to treat 1 ha, preferably not less than 350 litres/ha
Cutworm post-planting late infestations	(i) Cup Drench	20ml/100 litres water	Apply up to 2 x 30ml cups per plant so as to wet soil surrounding base of plant.
	(ii) High Volume Spray	32ml/100 litres water	Apply 425 litres spray mix per hectare directing the spray to the base of the plants and ensuring the lower leaves are covered.

NOTE: TO BE USED ON COTTONS FOLLOWS:

S E LOWVELD NOT before 25th December and NOT after end of February.
Elsewhere Not before 1st February

COTTON			
PEST	RATE		APPLICATION
	Quantity of FENVALERATE 20%EC/15litre k/sack		
Helioliths Bollworm Red Bollworm, spiny Bollworm Jassids, Stainers and leafeaters	NAPSACK LANCE (pumping frequency) (walking speed) knapsack/ha	20ml/15t knapsack (once every 6 paces) 72m/min 7k/sacks	20ml/15t knapsack (once every 4 paces) 72 m/min 10k/sacks
	KNAPSACK TAILBOOM (Pumping frequency) (Number of nozzles on boom) knapsacks/ha	20ml/15t knapsack (once every 6 paces) 4 nozzles) 7 k/sacks	20ml/15t knapsack (once every 4 paces) (5 nozzles) 10 k/sacks
	FENVALERATE 20%EC dosage / crop height		
Helioliths Bollworm, Spiny bollworm Jassids, Stainers and Leafeaters	Crop height	0.4 -0.9m	>0.9m
	Dosage/ha	133m	200ml
	Water spray vol/crop height / spray type		
	Crop height	0.4 -0.9m	>0.9m
SPRAY VOLUME	AERIAL	10t/ha	15t/ha
	MISTBLOWER	65t/ha	100t/ha
	GROUND ULV (Swath width) (walking speed) (height of sprayer above crop	3.2t/ha (3 rows) (60 m/min) (0.5 0.25 m	5t/ha (2 rows) (60 m/min) (At top of crop)

WARNINGS:

FENVALERATE may not be used on any crop between 1st June and 31st August.

In aerial applications protect the field and flag man from exposure, as spray can cause minor skin irritation to susceptible persons; therefore use permanent marker flags to indicate aerial swath. Avoid spray drift. Do not allow human or animal entry to treated fields for at least 1 day after application.

WARNANTY:

The excellent results which this chemical should normally yield are not however warranted or guaranteed, as effectiveness can be greatly influenced by factors outside the control of either the manufacturers or the suppliers. No warranty whatsoever, express or implied, is therefore given concerning the performance or effectiveness of the chemical and responsibility is specifically excluded for any damage, injury or loss of any kind during or resulting from its handling, use or storage, whether or not such has been in accordance with directions. This product is warranted to consist of the ingredients shown on the label.

Date of Manufacture: MAR. 2019

Batch No. 20190311

Registration held by:

MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD,
WORKINGTON, HARARE,
ZIMBABWE



MATERIAL SAFETY DATA SHEET

PRODUCT : FENVALERATE 200EC
EFFECTIVE DATE : FEBRUARY 2020
RENEWAL No. : 3
PAGE : 1 of 5

SUPPLIER : NOVA AGRO (HK) LTD.
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG

EMERGENCY TELEPHONE NUMBERS

SPILLAGES:

Emergency telephone : (+27) 83-676 1998

POISONINGS:

National Poison Centre : (+27) 21-9386084 (office hours).
(South Africa) (+27) 21-9316129 (after hours).

1. IDENTIFICATION OF THE SUBSTANCE

Trade name : FENVALERATE 200EC
Active ingredient : Fenvalerate
Chemical Name : (RS)- α -cyano-3-phenoxybenzyl
(RS)-2-(4-chlorophenyl)-3-
methyl butyrate
CAS No. : 51630-58-1
Chemical Family : Pyrethroid
Chemical Formula : C₂₅H₂₂ClNO₃ (Mol. wt.: 419.9)
Use : Non-systemic insecticide.
UN number : 3351
Hazchem class : 6.1

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components : Fenvalerate and Xylene
EEC number : Not listed
EEC classification : Not listed

3. HAZARD IDENTIFICATION

Toxicity class : WHO II; EPA II. A moderately toxic insecticide.
Main hazard : Can be toxic by skin and eye contact, ingestion and inhalation.
Eye contact : Minimally toxic. The product may cause mild irritation.
Skin contact : Minimally toxic. The product is irritating.

Ingestion : Moderately toxic if ingested. See point 4 for symptoms.
Inhalation : Toxic by inhalation. See point 4 for symptoms.

4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of exposure to the product include: mucous membrane irritation from inhalation, itching and burning of the skin, nausea, vomiting, gastro-enteritis with diarrhoea, nervousness, anxiety, salivation, incoordination, tremors, muscular paralysis, convulsions, coma, and death through respiratory failure.

Fenvalerate can induce numbness, itching, tingling, and burning sensations in exposed workers, which develop after a latent period of approximately 30 min, peak by 8 hours, and disappear within 24 hours.

Inhalation:

Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively. Seek medical advice immediately.

Skin contact:

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap followed by alcohol. Seek medical advice if necessary. The product is not considered to be a dermal sensitiser, but persons who become sensitised may require specialised medical management with anti-inflammatory agents.

Eye contact:

Immediately flush eyes with gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention if necessary.

Ingestion:

Remove by gastric lavage and catharsis. Supply oxygen if respiration is depressed. Do not perform gastric lavage if victim is unconscious. Seek medical advice immediately. Administration of lavage or oxygen should be performed by qualified medical personnel. Do not administer milk, cream, or other substances containing vegetable or animal fats which enhance absorption of pyrethroids.



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Advice to physician:

Contains xylene. There is no specific antidote. Treat symptomatically and supportively. Gastric lavage may be required and must be administered by qualified medical personnel, followed by ingestion of activated charcoal with water. If bowel movement has not occurred within 4 hours and patient is fully conscious, give sodium or magnesium sulphate as a cathartic.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

The product is flammable. Hydrogen cyanide may be formed during thermal decomposition.

Extinguishing agents:

Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Contain water used for firefighting for later disposal.

Firefighting:

Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon), mists or other products of combustion. Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin and eyes. For personal protection see Section 8.

Environmental precautions:

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Occupational spill:

Do not allow the product to come in contact with water systems. **Keep alkaline materials such as lime away from spilled fenvalerate.**

Small liquid spills: Soak up with sand or other suitable noncombustible absorbent material, and place into containers for subsequent disposal.

Large spills: Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Harmful by inhalation or if swallowed. Avoid contact with eyes and skin, and inhalation of fumes. Use with adequate Ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labeled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits:

ACGIH-TLV: Listed (as Pyrethrum) (ACGIH, 1996)

1. 5 mg/m³ TWA; no STEL

Engineering control measures:

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations. If engineering controls and work practices are not effective in controlling exposure to this



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material, then wear suitable personal protective equipment including approved respiratory protection.

PERSONAL PROTECTIVE EQUIPMENT:

Respirator:

An approved respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with the substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of safety goggles is recommended.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow-brownish clear liquid.
Odour: Moderate to strong unsaturated odour.
Flammability: Flammable.
Explosive properties: The product is considered to be explosive.
Flash point: 23 °C (Pensky-marten closed cup).
Oxidising properties: Considered to be oxidative.
pH: 6-8 (5% solution)
Relative density: $D_4^{20} = 0.942 \pm 0.0002$ at 20°C.
Storage stability: Stable for up to 2 years under normal warehouse conditions. Stable at 0°C and 53°C.
Solubility in water: *Technical material:* 1.07 µg/l at 20°C (pH 7.0 - 7.8).
Solubility in organic solvents: (All solubility figures in g/l at 20°C for active ingredient.)
xylene: > 200
methanol: 84
n-hexane: 53

Partition-coefficient in n-octanol / water:

$\log P_{ow}$: 5.57 *Data for technical material.*

Boiling point: Not available.

10. STABILITY AND REACTIVITY

Stability:

Stable in neutral and acidic media (optimum is pH 4), but hydrolysed by alkalis. The product is stable to heat and moisture.

Incompatibility:

Compatible with many insecticides, fungicides and acaricides, but incompatible with alkaline substances and alcohols. A compatibility test is required before using with other products. Do not physically mix concentrate directly with other pesticide concentrates; always dilute first. Alkaline substances may reduce the activity of the product.

Thermal decomposition:

Toxic fumes of chlorine and toxic oxides of nitrogen and carbon are produced when the product decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ : 586 mg/kg in rats.
Acute dermal LD₅₀ : > 3 842 mg/kg in rats.
Acute inhalation LC₅₀: 0.77 mg/L of air over 4 hours (rats).
Acute skin irritation: EEC: Irritant; EPA: Severe irritant.
Acute eye irritation: The product may cause eye irritation (rabbits).
Dermal sensitisation: Contact sensitizer (guinea pig).
Carcinogenicity: Animal studies did not detect carcinogenic activity. No human information available.
Teratogenicity: Animal studies did not detect any teratogenic effects. No human information available.
Mutagenicity: Animal studies did not detect any mutagenic activity. No human information available.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds: Minimally toxic to birds. Acute oral LD₅₀: > 2 000 mg/kg (bobwhite quail).



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Fish: Very toxic to fish. LC₅₀ (96 hr): 2,4 µg/L (Rainbow trout).
Bees: Toxic to bees. LD₅₀ (oral): 5,8 µg/bee
LD₅₀ (topical): 2,2 µg/bee.
Daphnia: Very toxic to *Daphnia magna*. LC₅₀ (48 h): 1,4 µg /L.
Earthworms: (*Eisenia foetida*). LC₅₀ (14 d):179.6 mg/kg dry weight.
Soil micro-organisms: Not toxic when the product is used at recommended rates.
Degradability: Microbial degradation is the most important degradation pathway in the soil column. The half-life in the soil column is 15 - 90 days. The half-life of the product on the soil surface is 1 - 18 days. In water, hydrolysis with cleavage of the ester bond occurs, with a half-life of 4 - 15 days.
Mobility: The product is not mobile in soil.
Accumulation: The product may bioaccumulate in aquatic organisms.
German wgk: 3

13. DISPOSAL CONSIDERATION

Pesticide disposal:

Contaminated absorbents, surplus product, etc., should be burned in a high- temperature incinerator (> 1000°C) with effluent gas scrubbing. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must first be triple-rinsed with water, then punctured and transported to a scrap metal facility for recycling or disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 3351
ADR/RID:
Shipping name: Pyrethroid pesticide, liquid, toxic flammable (Fenvalerate)
Substance ID no. 3351

IMDG/IMO

Packaging group: II
Label of class: 6.1
Shipping name: Pyrethroid, pesticide, liquid flammable (Fenvalerate) flashpoint | 23°C

AIR/IATA

Shipping name Pyrethroid, pesticide, liquid flammable (Fenvalerate) flashpoint | 23°C
Class 6.1
Hazard Label Toxic & Flammable liquid
Packaging Group II
Passenger Aircraft Y609 (1litre)
Y609 (max 5 L)
Cargo Aircraft Y609 (max 60L)
UK classification: Not available.
Tremcard ref number: 61G43b

15. REGULATORY INFORMATION

Symbol: X_n, Xi
Indication of danger: Harmful and Irritant;
Dangerous for the environment.
Risk phrase(s):
R22 Harmful if swallowed.
R23 Toxic by inhalation.
R36/38 Irritating to eyes and skin.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases:
S2 Keep out of the reach of children.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61 Avoid release to the environment. Refer to special instructions.

16. OTHER INFORMATION



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All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

REFERENCES

Applicable own physical and chemical, toxicity and ecotoxicity research studies.

The Pesticide Manual; 13th Edition; Editor, Clive Tomlin; Crop Protection Publications, 2003.

Pestline. Material Safety Data Sheets for Pesticides and Related Chemicals, Volume II, Occupational Health Services Inc.; 1991.

Agriculture and Public Health; Guide to the Treatment of Poisoning by Chemicals, 1993

Dangerous Goods Regulations 40th Edition, Effective 1 January 1999.
