

# UNIVERSAL LINEAR 350 EC

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** LINEAR 350 EC  
**Other identifier:** Chlorpyrifos + Lambda-Cyhalothrin 350 EC  
**Recommended use:** Insecticide  
**Restrictions on use:** Agriculture

**Supplier:** Universal Crop Protection (Pty) Ltd.  
**Co. Reg. No.:** 1983/008184/07  
PO Box 801  
Kempton Park, 1620, South Africa  
**Telephone:** (011) 396 2233  
**Fax:** (011) 396 4666  
**Website:** [www.villacrop.co.za](http://www.villacrop.co.za)

**Emergency telephone numbers:**  
**24 Hr Transport / Spill emergency no:**  
Envirosure. +27 31 205 4918  
(Hazcall24) +27 86 044 4411  
(Client: Villa Crop Protection)  
Griffon Poison Information Centre +27 82 446 8946  
(Client: Villa Crop Protection)  
**Poisoning Emergency telephone numbers:**  
Griffon Poison Information Centre +27 82 446 8946  
Poisons Information Centre +27 861 555 777  
**Villa Crop Protection Emergency number:**  
**National Safety, Health and Environmental Manager:**  
+27 63 698 0668

## 2. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
<b>Health</b>		
Oral	Acute Tox. 4	H302
Dermal	Acute Tox. 5	H313
	Skin Irrit. 3	H316
Eye	Eye Dam. 1	H318
Inhalation	Acute Tox. 3	H331
	Asp. Tox.1	H304
<b>Environment</b>		
Aquatic acute	Aquatic acute 1	H400
Aquatic chronic	Aquatic chronic 1	H410

**The most important adverse effects:**  
**Physiochemical effects:**  
None known

**Human health effects:**  
May be fatal if swallowed and enters airways.

Causes serious eye damage.  
Toxic if inhaled.

### Label elements:



**Signal word:** Danger.

### Hazard statements:

H302: Harmful if swallowed.  
H304: May be fatal if swallowed and enters airways.  
H313: May be harmful in contact with skin.  
H316: Causes mild skin irritation.  
H318: Causes serious eye damage.  
H331: Toxic if inhaled.  
H400: Very toxic to aquatic life.  
H410: Very toxic to aquatic life with long lasting effects.

### Precautionary statements:

P261: Avoid breathing mist, vapours and spray.  
P264: Wash hands and face thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear impervious rubber gloves and boots, protective clothing and chemical safety goggles.  
P301/310: IF SWALLOWED: Immediately call a POISON CENTER.  
P304/340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P331: Do NOT induce vomiting.  
P391: Collect spillage.  
P405: Store locked up.  
P501: Dispose of content/container to suitable landfill in accordance with local regulations.

**Special labelling of certain mixtures:** None known.

**Other hazards:** None known.

**Toxicity:** Classification according to GHS: Category 3.  
Classification according to WHO: Category 2.

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture.

#### Composition:

Chemical Name	CAS	Conc. (m/v %)	Classification EC 1272/2008
Chlorpyrifos	2921-88-2	33,8%	AcuteTox.3 (H301) Aquatic Chronic 1 (H410)
Lambda-Cyhalothrin	91465-08-6	1,2%	Acute Tox. 3 (H301) Acute Tox. 4 (H312) Acute Tox. 2 (H330) Aquatic Acute. 1 (H400) Aquatic Chronic. 1 (H410)
Solvent	64742-94-5	< 60%	Asp.Tox.1 (H304)
Emulsifier	n/a	< 10%	Skin. Irri. 2 (H315) Eye.Dam.1 (H318)

### 4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure. Immediately consult a doctor.

**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. **LINEAR 350 EC** may cause severe pneumonitis if aspirated. **Seek medical attention immediately.**

**Skin:** Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

**Eyes:** Immediately flush eyes with gently flowing cold water or saline solution for 15-20 minutes, holding the eyelid(s) open. **Seek medical attention immediately.**

**Ingestion:** Have victim rinse mouth thoroughly with water. Do NOT induce vomiting, due to the aromatic solvent. In cases of ingestion, consider gastric lavage, however, prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Treat symptomatically and supportively. **Seek medical attention immediately.**

**Anticipated acute effects:** Nausea, vomiting, anorexia, abdominal cramps, and diarrhoea & blurred vision.

**Anticipated delayed effects:** Pneumonia, headache, tiredness, dizziness, tremors of the tongue, sweating and salivation, confusion, ataxia, slurred speech and coma.

**Most important symptoms/effects:** Vomiting, diarrhoea, blurred vision, dizziness, sweating, salivation, tremors of the tongue, pneumonia and respiratory difficulty.

**Advice to physician:** Atropine must be administered as early as possible and could save lives, if given in time and in an adequate dosage. Patients with organophosphate poisoning require amounts of atropine far in excess of doses usually employed in medical practice. Do NOT induce vomiting: product contains aromatic solvents.

### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Extinguish fires with carbon dioxide, dry powder or alcohol-resistant foam.

**Unsuitable Extinguishing Media:** Water jet. Use a water jet only to cool heated containers. Water may be ineffective in controlling fire.

**Specific hazards:** None.

**Special Fire Fighting Procedures:** Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Burning chemicals may produce by-products more toxic than the original material. Remove container from fire area if possible and without risk. Avoid pollution of waterways. Contain water used for firefighting for later disposal.

**Personal protective equipment:** Wear NIOSH/MSHA approved self-contained breathing apparatus and full protective gear.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Do not breathe in fumes. Ventilate area of spill or leak, especially in contained areas. Avoid aspiration exposure, contact with eyes and skin.

**Protective equipment:** Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

**Emergency procedures:** Alert firefighting personnel, evacuate unprotected personnel and animals.

**Environmental Precautions:** Prevent spilled product from entering sewers, waterways or ground water as the product is classified to be very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Any spillages or uncontrolled discharges into water courses should be immediately reported to the police and the Department of Water/Environmental Affairs.

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**Methods and Materials for Containment:** Contain spilled product by diking area with sand, earth or clay.

**Methods and Materials for Clean-up:** Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. For large spills contact the manufacturer. See section 13 for disposal considerations.

### 7. HANDLING AND STORAGE

**Handling: Precautions for safe handling:** Maybe fatal if swallowed and enters airways. Avoid contact with eyes and skin. Ensure adequate ventilation during handling and use. Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers tightly closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.

**General occupational hygiene:** Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used again.

**Storage: Conditions for safe storage:** Keep under lock and key and keep out of reach of unauthorised persons, children and animals. Store in its original labelled container in an isolated, dry, cool and well-ventilated area. Do not store near heat, open flame, sources of ignition or hot surfaces. Avoid cross contamination with other pesticides and fertilisers. Local regulations should be complied with.

**Incompatible substances and mixtures:** Refer to product label.

**Packaging material:** Fluorinated plastic containers.

### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

#### Permissible concentration

Components	Exposure limits	Type of exposure limit	Source
Chlorpyrifos	100 ppm	0.2 mg/m <sup>3</sup> (Skin)	OES

**Engineering Controls:** It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or

local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

#### Personal Protective Equipment:

**Respiratory Protection:** Wear an organic cartridge respirator suitable for protection from mists/ vapours of pesticides if inhalation is likely to occur.

**Hand Protection:** Employee must wear appropriate chemically resistant gloves e.g. nitrile rubber gloves, to prevent contact with this mixture.

**Eye Protection:** Wear a face shield when handling the concentrate and when applying the product. The use of safety goggles is recommended if a face shield is not used.

**Skin and Body Protection:** The use of protective (impervious) clothing, e.g. coveralls, is recommended to prevent skin contact with this mixture.

**Emergency eyewash:** 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:** Emulsifiable concentrate (Yellowish Brown).

**Odour:** Typical odour.

**pH (1% aqueous dilution):** 6.5.

**Melting point:** Not available.

**Freezing Point:** Not available.

**Boiling Point:** Not available.

**Flash Point:** 60 °C.

**Flammability:** Flammable.

**Upper/lower explosion limits:** Not explosive.

**Vapour Pressure (mm Hg):** Not available.

**Relative Vapour Density:** Not available.

**Density:** 1.040 g/cm<sup>3</sup>.

**Solubility:** Emulsifies in water.

**n-octanol/water partition coefficient:** Not available.

**Auto-ignition temperature:** Not available.

**Decomposition temperature:** Not available.

**Viscosity:** Not available.

### 10. STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable at ambient temperature and pressure, under normal storage and handling conditions. Stable for up to 2 years when stored in a dry, cool covered warehouse in original, well-labelled containers. Store at low temperature conditions, below 50°C, preferably below 30 °C and not for prolonged periods in direct sunlight.

**Reactivity:** None known.

**Possibility of Hazardous Reactions:** None known.

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**Conditions to Avoid:** Extreme heat or exposure to flames.

**Incompatible Materials:** None known.

**Hazardous Decomposition Products:** Fumes and smoke. Toxic thermal decomposition may include oxides of carbon, sulphur and nitrogen and compounds of chlorine and fluorine and carbon monoxide.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY:

**Calculated according to GHS.**

**Oral LD<sub>50</sub> (24h) rat** 330.7 mg/kg.

**Dermal LD<sub>50</sub> (24h) rat** 2052.2 mg/kg.

**Inhalation LC<sub>50</sub> (4h) rat** 0.50 mg/ℓ.

**Skin Irritation/Corrosion:** Causes mild skin irritation.

**Eye Damage/Irritation:** Causes serious eye damage.

**Skin Sensitization:** None known.

**Respiratory Sensitization:** Not available.

**Reproductive cell mutagenicity:** Not available.

**Carcinogenicity:** Not available.

**Reproductive toxicity:** Not available.

**Specific target organ toxicity – single exposure:** Not available.

**Specific target organ toxicity – repeated exposure:** Not available.

**Aspiration hazard:** May be fatal if swallowed and enters airways.

### POTENTIAL ADVERSE EFFECTS:

**Inhalation:** Headache, tiredness, dizziness, sweating, salivation, confusion, ataxia and death.

**Skin contact:** Not available.

**Eye contact:** Blurred vision.

**Ingestion:** Nausea, vomiting, anorexia, abdominal cramps, diarrhoea, tremors of the tongue, pneumonia and respiratory difficulty.

## 12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic life with long lasting effects.

### ECOTOXICITY DATA:

#### Fish:

##### Chlorpyrifos

LC<sub>50</sub> (96h) Bluegill sunfish 0.002-0.010 mg/ℓ

LC<sub>50</sub> (96h) Rainbow trout 0.007-0.051 mg/ℓ

LC<sub>50</sub> (96h) Roach 0.25 mg/ℓ

LC<sub>50</sub> (96h) Fathead minnow 0.12-0.54 mg/ℓ

##### Lambda-Cyhalothrin

LC<sub>50</sub> (96h): Rainbow trout 0.36 µg/ℓ

Bluegill sunfish 0.21 µg/ℓ

#### Daphnia:

##### Chlorpyrifos

LC<sub>50</sub> (48h) *D. magna* 1.7 µg/ℓ

##### Lambda-Cyhalothrin

EC<sub>50</sub> (48 h) *D. magna* 0.36 µg/ℓ

#### Algae:

##### Chlorpyrifos

NOEC *Selenastrum capricornutum* >0.4 mg/ℓ

##### Lambda-Cyhalothrin

ErC<sub>50</sub> (96 h) *Selenastrum capricornutum* >1000 µg/ℓ

#### Other aquatic organisms:

##### Chlorpyrifos

LC<sub>50</sub> Korean shrimp (*Palaemon macrodactylus*) 0.05 µg/ℓ.

##### Lambda-Cyhalothrin

Intrinsic toxicity to aquatic organisms is greatly reduced by rapid loss from the water by adsorption and degradation.

#### Birds:

##### Chlorpyrifos

Acute oral

LD<sub>50</sub> Mallard ducks 490 mg/kg

House sparrows 122 mg/kg

Chickens 32-102 mg/kg

Dietary LC<sub>50</sub> (8 d) Bobwhite quail 423 ppm

##### Lambda-Cyhalothrin

Toxic to birds

Oral LD<sub>50</sub> Mallard ducks > 3950 mg/kg

LC<sub>50</sub> (diet) Quail > 5300 mg/kg

No evidence of accumulation in eggs or tissue of birds.

#### Bees:

##### Chlorpyrifos

Toxic to bees.

LD<sub>50</sub> (oral) 360 ng/bee

LD<sub>50</sub> (contact) 70 ng/bee

##### Lambda-Cyhalothrin

Highly toxic

LD<sub>50</sub> (oral) 38 ng/bee

LC<sub>50</sub> (contact) 909 ng/bee

#### Worms:

##### Chlorpyrifos

LC<sub>50</sub> (14 d) *Eisenia foetida* 210 mg/kg soil

##### Lambda-Cyhalothrin

LC<sub>50</sub>: *Eisenia foetida* >1000 mg/kg soil

#### Plants:

##### Chlorpyrifos

Non-systemic in plants, not absorbed from soil via the roots. Residues taken up by plant tissues are metabolised to 3,5,6-trichloropyridin-2-ol which is conjugated and sequestered.

##### Lambda-Cyhalothrin

For details of metabolism of lambda-cyhalothrin in cotton and soya bean leaves, see D. A. French & J. P. Leahey, *Proc. Br. Crop Prot. Conf. - Pests Dis.*, 1990, 3, 1029-1034.

### ENVIRONMENTAL EFFECTS:

#### Persistence and degradability:

##### Chlorpyrifos

In soil, **Chlorpyrifos** is degraded at a moderate rate; DT<sub>50</sub> (lab.) 10-120 d (25°C); field DT<sub>50</sub> for soil-incorporated

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applications 33-56 d, for soil-surface applications 7-15 d. Primary route of degradation is transformation to 3,5,6-trichloropyridin-2-ol, which is subsequently degraded to organochlorine compounds and CO<sub>2</sub>. K<sub>OC</sub> 1250-12 600.

### Lambda-Cyhalothrin

Rapidly degraded in soil; DT<sub>50</sub> for microbial degradation 23-82 d, for field soil 6-40 d. Strongly adsorbed to soil and sediment organic matter, K<sub>OC</sub> 330 000. Negligible potential for leaching of **Lambda-cyhalothrin** and its degradation products through soil. Rapid dissipation from water in aquatic systems. DT<sub>50</sub> for dissipation from surface waters in lab. water-sediment systems 5-11 h; in a microcosm DT<sub>50</sub> <3 h. Rapid and extensive degradation of parent compound in aquatic systems; DT<sub>50</sub> for degradation in lab. water-sediment systems 7-15 d; in a microcosm DT<sub>50</sub> <3 h, DT<sub>90</sub> <3 d.

**Bio-accumulative Potential:** Not determined.

**Mobility in soil:** Not determined.

**Other adverse effects:** Not determined.

### 13. DISPOSAL CONSIDERATIONS

**Waste:** Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

**Container:** Emptied containers retain vapour and product residues. Do not re-use the empty container for any other purpose. Triple rinse empty containers by inverting the empty container over the spray or mixing tank and allow draining 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 one third of that of the container. Add the rinsing's to the contents of the spray tank before recycling or destroying the container in the prescribed manner. Observe all labelled safeguards until container is destroyed.

### 14. TRANSPORT INFORMATION

**UN Number:** 2903

#### Road Transport ADR/IRD:

Class: 6.1

Packaging group: III

UN Proper Shipping Name: Pesticide Liquid Toxic, **Flammable**, N.O.S (Chlorpyrifos + Lambda-cyhalothrin 350 g/l)

#### Maritime Transport IMDG/IMO:

Class: 6.1

Packaging group: III

UN Proper Shipping Name: Pesticide Liquid Toxic, **Flammable**, N.O.S (Chlorpyrifos + Lambda-cyhalothrin 350 g/l).

**Marine Pollutant (Y/N):** Yes

#### Air Transport IATA/ICAO:

Class: 6.1

Packaging group: III

UN Proper Shipping Name: Pesticide Liquid Toxic, **Flammable**, N.O.S (Chlorpyrifos + Lambda-cyhalothrin 350 g/l).

**Special/Environmental Precautions:** None known.

**Transport in bulk** (according to MARPOL 73/78, Annex II and the IBC code): Not available.

### 15. REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation for the mixture:**

OHSA 1993 Regulations for Hazardous Chemical Substances.

**Relevant information regarding restrictions:** None.

**EU regulation:** Regulation EC1272/2008 (EU-GHS/CLP).

**Other national regulations:** None.

**Chemical Safety Assessment carried out?** No.

### 16. OTHER INFORMATION

**Packaging:** Packed in 1, 5, 10, 20 and 25 litres fluorinated plastic containers, labelled according to South African regulations and guidelines.

#### Additional H Statement (s) (formulants).

**H301:** Toxic if swallowed.

**H312:** Harmful in contact with skin.

**H313:** May be harmful in contact with skin.

**H315:** Causes skin irritation.

**H330:** Fatal if inhaled.

**Disclaimer:** The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

### END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.