

NRA

**NATIONAL REGISTRATION AUTHORITY
FOR AGRICULTURAL AND VETERINARY CHEMICALS**

Public Release Document

IMIDACLOPRID IN THE PRODUCT CONFIDOR INSECTICIDE

This document is published by the
National Registration Authority for
Agricultural and Veterinary Chemicals.
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FOREWORD

The National Registration Authority for Agricultural and Veterinary Chemicals (NRA) is an independent Statutory Authority with responsibility for the assessment and approval of agricultural and veterinary chemical products prior to sale and use in Australia.

In undertaking this task, the NRA works in close cooperation with advisory agencies including the Department of Human Services and Health (Chemical Safety Unit), the Commonwealth Environment Protection Agency (CEPA), the National Occupational Health and Safety Commission (Worksafe Australia) and State Departments of Agriculture and Health.

The NRA has a policy of encouraging openness and transparency in its activities and seeking community involvement in decision making. The publication of Public Release Summaries for all products containing new active ingredients is a part of that process.

The information and technical data required by the NRA in order to assess the safety of new chemical products and the methods of assessment must be undertaken according to accepted scientific principles. Details are outlined in the document "Requirements for Clearance of Agricultural and Veterinary Chemical Products" which can be obtained from the NRA.

This Public Release Summary is intended as a brief overview of the assessment that has been completed by the NRA and advisory agencies. The document has been deliberately presented in a manner that is likely to be informative to the widest possible audience thereby encouraging public comment. The publication of more technical information to accompany Public Release Summaries is planned for the future.

As a relatively new organisation, the NRA would welcome comment on the usefulness of this document and suggestions for further improvement. Comments should be forwarded to The National Registration Manager, National Registration Authority for Agricultural and Veterinary Chemicals, PO Box 240, Queen Victoria Terrace, Parkes, ACT, 2600.

ABBREVIATIONS AND ACRONYMS WHICH MAY BE USED IN THIS DOCUMENT

ADI	Acceptable Daily Intake (for humans)
CSU	Chemical Safety Unit (of the Department of Human Services and Health)
d	Day
EC ⁵⁰	Concentration at which 50 % of the test population of fish are immobilized
EUP	End Use Product
Fo	Original Parent Generation
h	Hour
HPLC	High Performance Liquid Chromatography
id	Intradermal
ip	Intraperitoneal
im	intramuscular
iv	Intravenous
In Vitro	Outside the living body and in an artificial environment
In Vivo	Inside the living body of a plant or animal
Kg	Kilogram
L	Litre
LC ⁵⁰	Concentration that kills 50% of the test population of organisms
LD ⁵⁰	Dosage of chemical that kills 50% of the test population of organisms
m	Metre
mg	Milligram
mL	Millilitre
MRL	Maximum Residue Limit (a legal limit)
MSDS	Material Safety Data Sheet
ng	Nanogram
NHMRC	National Health and Medical Research Council
NOEC/NOEL	No Observable Effect Concentration/Level
NRA	National Registration Authority for Agricultural and Veterinary Chemicals
po	Oral
ppb	parts per billion
ppm	parts per million
s	Second
sc	Subcutaneous
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
T-Value	A value used to determine the First Aid Instructions for chemical products that contain two or more poisons
TGAC	Technical Grade Active Constituent
WDG	Water Dispersable Granule
WHP	Withholding Periods

EXECUTIVE SUMMARY

Introduction

The purpose of this document is to provide a summary of the data reviewed and an outline of regulatory considerations for the proposed clearance and registration of the chemical imidacloprid in the product CONFIDOR INSECTICIDE as an insecticide for the control of green peach aphids on stone fruits, potatoes and selected vegetables and rose aphids on roses. Use in all States is proposed.

The National Registration Authority for Agricultural and Veterinary Chemicals (NRA) invites public comment before deciding whether to proceed to approve this product for use in Australia.

The NRA has completed an assessment of the data submitted by the applicant in support of this use of imidacloprid and has provided the following information for public comment:

Agricultural Aspects

Imidacloprid acts like acetylcholine, the common nerve transmitter, to stimulate certain cells by binding to the nicotinic receptor. Imidacloprid will be marketed in the product CONFIDOR INSECTICIDE, as a 20% soluble liquid and a 35% suspension concentrate.

The control of green peach aphid in stone fruits, potatoes and selected vegetable crops essentially serves a dual purpose. First it reduces the physiological damage caused by aphid feeding and second, it controls the spread of virus transmission.

The data package adequately indicates that CONFIDOR INSECTICIDE will control the specified insects when used according to the directions on the label.

There was no evidence of phytotoxicity to stonefruits, tomato, potatoes, capsicums, eggplant and roses, which are the subjects of this application for label approval.

Advantages of using imidacloprid in the above situations is that being in a new chemical group, it will reduce the problems of resistance associated with products from the organophosphorus and carbamate groups. It is also less toxic to mammals than many of the currently used aphicides, thus reducing the hazard to users.

Environmental Aspects

CONFIDOR has improved potency and selectivity compared to those currently used for aphid control.

Imidacloprid is persistent in laboratory soils, but degrades more rapidly under grass cover in the laboratory.

Proposed applications of imidacloprid are as foliar sprays at the first sign of aphid infestation, with repeat applications as necessary. In most instances it is expected that maximum of two applications would be sufficient per season. In view of this use pattern, the more favourable laboratory results obtained under grass compared with bare soil, and the confinement of detectable residues to the surface 30 cm in field trials, the likelihood of significant accessions of imidacloprid residues to ground water is low.

As may be expected for an insecticide, hazard to bees is high. The label warns that use of CONFIDOR represents an acute hazard to bees and warns against application to any plants in bloom while bees are foraging.

Toxicology

Imidacloprid, the active ingredient of CONFIDOR 200 SL and 350 SC insecticides, acts by blocking the activity of nerves in the peripheral and central nervous systems. It has moderate acute mammalian toxicity following oral administration, but low toxicity if inhaled or applied to the skin. It does not irritate the eyes or skin, nor does it have skin sensitising potential; Both of the formulated products have low oral acute toxicity, and no skin irritancy or sensitising potential, but CONFIDOR 200 SL is a mild eye irritant.

Imidacloprid was well tolerated in long-term studies in rodents, but was less well tolerated in dogs. The principal toxic effects were consistent with the effects on the nervous system. There was no evidence of a potential to cause cancer, birth defects or damage to genetic material (DNA).

Residues in Food Commodities

Metabolic studies demonstrated that unchanged imidacloprid is a significant residue arising from the application of CONFIDOR to stone fruit and fruiting vegetables. Analytical methods appropriate to determine the potential imidacloprid residues were evaluated.

Residue trial data were provided on some stone fruit, potato, capsicum and tomato. These trials were adequate to establish that use of CONFIDOR could produce significant residues of imidaclopridin all of these commodities, except potato, where the residues were below the limit of analytical determination. Appropriate Maximum Residue Limits (MRLs) were recommended. The level of residues are not expected to cause adverse effects to human health.

Occupational Health and Safety Aspects

CONFIDOR 200SL and CONFIDOR 350SC present minimal safety risk to workers when handled according to instructions on the label and the MSDS. The risk of developing significant acute and chronic health effects from occupational exposure is low. CONFIDOR 200 SL may produce slight eye irritation. However irritation on exposure to the prepared spray is unlikely because of its high dilution.

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INTRODUCTION

The purpose of this document is to provide the public with a summary of the data reviewed and an outline of the regulatory considerations for the proposed chemical imidacloprid as an insecticide for the control of green peach aphids on stone fruits, potatoes and selected vegetables and rose aphid on roses and to seek public comment prior to the chemical product being approved for use in Australia.

Comments should be sent to:

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Applicant

Bayer Australia Limited has applied for the clearance and registration of an insecticide product containing a new active constituent, imidacloprid, a nitroguanidine derivative with some structural similarity to nicotine.

Product Details

Imidacloprid will be marketed in two formulations, a 20% soluble liquid and a 35% suspension concentrate with trade name CONFIDOR. CONFIDOR will be formulated locally from imported active ingredient. Bayer Australia intends to market CONFIDOR in all States for the control of green peach aphids on stone fruits, potatoes and selected vegetables and rose aphids on roses.

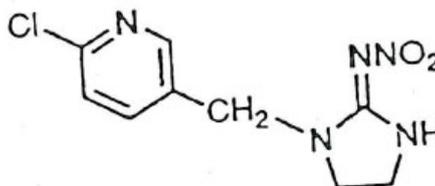
Overseas Registration Status

Products containing imidacloprid are registered in Thailand, Zimbabwe, Paraguay, Israel, France, South Africa, El Salvador, Ecuador and the USA.

PROPERTIES OF THE CHEMICAL ACTIVE INGREDIENT

The chemical active ingredient imidacloprid is manufactured in Germany and has the following properties:

Common name:	imidacloprid
Chemical name :	1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine 1 <i>H</i> -imidazol-2-amine
Product name:	Confidor insecticide
CAS Registry Number:	183261-41-3
Empirical formula:	C ₉ H ₁₀ ClN ₅ O ₂
Molecular Weight:	255.7
Physical form:	powder
Colour:	cream
Odour:	characteristic, weak
Melting point:	143.8°C
Density:	1.54 (TGAC)
n-Octanol/water partition coefficient	P _{ow} =3.76 logP=0.57
Vapour pressure:	2 x 10 ⁻⁴ mPa at 20°C



Structural Formula:

AGRICULTURAL ASSESSMENT

Justification for Use

Stone fruit - green peach aphid is a serious pest of stone fruit growing in most orchard areas of Australia. Trees are injured during spring and early summer by aphids sucking sap, and where severe infestations occur, the leaves and blossoms become distorted, shrivelled and finally die.

Potatoes - the control of green peach aphids on potatoes is necessary, not so much for damage by feeding, but for the role aphid play in transferring leaf roll virus between plants. Regular spraying for control of aphids is essential where potatoes are grown for seed as the virus can be carried over within seed potatoes.

Tomatoes, capsicums, eggplants - the control of green peach aphids on these crops is essential for dual purposes of reducing the physiological damage caused by aphid feeding and for the prevention of virus transmission.

Roses - plants used for the cut flower market are susceptible to aphids, particularly to the rose aphid. Feeding by aphids causes damage to leaves and distortion of flower parts resulting in substantial losses, as the cut flower trade demands a perfect product.

The economic and technical advantages offered by the use of imidacloprid for control of aphids on the nominated crops are

- It is from a new chemical group and has been found to control aphids, which are resistant to currently used products from the organophosphorus and carbamate groups.
- It acts swiftly to achieve aphid paralysis, thus reducing the chance of virus transmission.
- It is less toxic than many of the currently used aphicides, thus reducing the hazard to users.

Proposed Use Pattern

The product is to be mixed with water and applied at the first sign of aphid infestation, with repeat application as necessary. The frequency of application will depend on seasonal factors. For stone fruit, a single application early in the season will usually be sufficient. Similarly, a single treatment per season should suffice for capsicums, tomatoes, eggplant and roses with repeat treatments if necessary.

A programme of sprays is usually required for potato cultivation particularly in seed growing areas, as aphids are vectors of the leaf roll virus. Around six sprays may be applied at 2-3 week intervals to potatoes during the summer aphid season. Most crop damage from aphids occurs during spring and early summer.

Evaluation of Efficacy

Trials were started in 1989 and have been conducted to cover all crops that are listed on the label. Although rates of CONFIDOR as low as 1g ac/100L have given good control of green peach aphid on stone fruits, the label rate has been established at 5g ac/100L because that rate has achieved the fastest knockdown and the most effective result with sufficient degree of confidence.

From the trials done on potatoes it is concluded that a rate of 60g ac/ha will give a constant, high level degree of control of the aphid under a wide range of conditions and therefore included as the label rate for potatoes.

The evaluation of efficacy of the products on all other vegetable crops has proved that the products perform effectively on the target species at the recommended label rates.

The results from trials show that rose aphid is particularly susceptible to CONFIDOR with very little dose dependent trend evident. Therefore, in determining label rate, factors such as consistency of recommendation, economic level of product use, a practical measurable amount and reliability under practical conditions were considered and as a result the rate of 5g ac/100L was recommended.

Phytotoxicity

No phytotoxicity effects were noted in ten trials, which include stone fruits (apricots, nectarines, peacharines, peaches, cherries), potatoes, tomatoes, capsicums, eggplant and roses.

ENVIRONMENTAL ASSESSMENT

Environmental Fate

Imidacloprid is a moderately hydrophilic nitroguanidine derivative with a low partition coefficient. It will be applied as a spray at relatively low rates to various crops where it offers systemic protection against aphids. Following application, residues that are not retained by the crop are expected to become associated with the soil and interstitial water.

Imidacloprid is hydrolytically stable but photodegrades readily in solution. Photochemical breakdown may be slow, however, in turbid Australian waters.

Biodegradation of imidacloprid involves various transformations of the imidazolidine moiety, such as reduction of the nitroguanidine moiety to the free base, hydroxylation of a methylene group followed by oxidation or dehydration and ring cleavage, and transformation of the nitroguanidine to the corresponding urea.

Imidacloprid is at least moderately persistent in aerobic soils. Laboratory aerobic degradation studies indicate that metabolism of imidacloprid proceeds more rapidly under vegetation (half-life 7 weeks) than in bare soils (first half-life 27 to 36 weeks). Mineralisation of the pyridinyl methylene occurs under aerobic conditions, with traces of the intermediate 6-chloronicotinic acid detected in some studies.

It appears that anaerobic conditions favour the reductive pathway (half-life 4 weeks) but that the free base formed is persistent in the absence of oxygen. The biological activity of this metabolite is unclear.

Imidacloprid does not bind strongly to soils, and is moderately mobile. However, field studies indicate that it is well retained by surface soil horizons. Residues were generally retained in the surface 10 cm of soil in field dissipation studies. Some movement was detectable beneath vegetated plots, apparently due to translocation in growing plant roots, but residues detected in the 10-20 cm horizon were less than 1% of the initial peak loading around treated seed. Residues in the 20-30 cm horizon were below the limit of quantification.

Environmental Effects

Imidacloprid is moderately toxic to mammals and moderately to highly toxic to birds by acute oral administration. However, it appears to exert a repellent effect on birds as dietary studies indicate that imidacloprid is no more than slightly toxic to birds.

Imidacloprid is practically non toxic to adult fish and green algae. It exerts slightly to moderately toxic effects on *Daphnia* reproduction, and is slightly toxic to rainbow trout in early life stage tests.

Imidacloprid has a systemic mode of action and is therefore selective for sucking insects, and to a lesser extent, chewing insects. It is highly toxic to earthworms and very highly toxic to bees by oral and contact routes. Other beneficial insects such as ladybirds and lacewings are said to be relatively unaffected by field applications of

imidacloprid. The new insecticide is not expected to exert adverse effects on turnover of carbon and nitrogen in soils.

Environmental Hazard

CONFIDOR is generally less toxic and will be applied at a lower rate than currently used aphicides. However, it is highly toxic to some non-target organisms, notably earthworms and bees.

In terms of residues, the proposed application rate equates to less than 200 $\mu\text{g.kg}^{-1}$ dispersed in the top 5 cm of soil, below the no effect level of 1 mg.kg^{-1} in laboratory tests on earthworms. Lower residues would prevail in the field because of interception by the crop. Soil residues of imidacloprid arising from the proposed use are expected to remain below 10% of the no-effect-level for earthworms.

CONFIDOR is clearly hazardous to bees, as the proposed application rate would deposit the equivalent of more than ten contact LD50s on an area of 1 cm^2 .

Imidacloprid is not expected to be hazardous to mammals, birds, adult fish or plants (terrestrial and aquatic, including algae) because of its favourable toxicity profile for these organisms under likely conditions of exposure.

As noted above, slight toxicity was observed in early life stage and reproductive testing on rainbow trout and *Daphnia*. Application at 100 g.ha^{-1} would leave residues of 70 mg.L^{-1} in 15 cm of standing water, some 50 times lower than lowest effect concentrations obtained in 21 day *Daphnia* reproduction tests and 250 times lower than the same end point in 60 day early life stage tests on rainbow trout. Aquatic hazard is low.

In summary, imidacloprid is an insecticide from a new chemical class with improved potency and selectivity compared with those currently used for aphid control on stone fruit, potatoes, tomatoes, etc.

The compound is persistent in laboratory soils, but degrades more rapidly under grass cover in the laboratory. In field trials, residues remained confined to the surface 10 cm of soil following spray application to bare ground. Isolated detections occurred below 10 cm following use as seed dressing. This use entails high localised concentrations around treated seed and facilitates movement via translocation in growing roots. However, even under these conditions, imidacloprid could only be detected in the surface 30 cm of the soil.

Proposed application of imidacloprid are as foliar sprays at the first sign of aphid infestation. In most instances it is expected that maximum of two applications would be sufficient per season. In view of this-use pattern, the more favourable laboratory results obtained under grass compared with bare soil, and the confinement of detectable residues to the surface 30 cm in field trials makes it unlikely that there will be significant accessions of imidacloprid residues to groundwater.

As may be expected for an insecticide, hazard to bees is high. The label warns that use of CONFIDOR represents an acute hazard to bees, and restrains application to any plants in bloom while bees are foraging.

PUBLIC HEALTH AND SAFETY ASSESSMENT

Evaluation of Toxicology

The toxicological database for imidacloprid, which consists primarily of toxicity tests conducted using animals, is quite extensive. In interpreting these data, it should be noted that animal toxicity tests generally use doses or exposures which are high compared to likely human exposures. The use of high doses increases the likelihood that potentially significant toxic effects will be identified. Toxicity tests should also indicate dose levels at which the specific toxic effects are unlikely to occur. Such dose levels as the No Observable Effect Level (NOEL) are used to develop appropriate standards for exposures at which no adverse health effects in humans would be expected.

Imidacloprid has nicotine-like effects on the nervous system. Its acute toxicity was moderate in mice and rats. There was low potential for toxicity when applied to the skin or inhaled. Imidacloprid was not irritant to either the eyes or skin in tests using rabbits, nor was it a skin sensitiser in tests using guinea pigs. The two products, CONFIDOR 200 SL and 350 SC, were of low acute oral toxicity in rats and mice, commensurate with the content of the active ingredient. CONFIDOR 200 SL showed no evidence of skin irritancy or sensitisation, but was a slight eye irritant: These data confirm the low risk of acute poisoning with either CONFIDOR product, but indicate the need to prevent exposure of the eyes in the case of CONFIDOR 200 SL.

Imidacloprid was well absorbed in rats after oral dosing. It was extensively metabolised and the metabolites were excreted in bile, urine and faeces. There was no evidence that imidacloprid would accumulate in the body after repeated doses.

Short-term (up to 90 days) and long-term (1 - 2 years) administration of imidacloprid to mice, rats, rabbits and dogs at doses ranging up to 400 mg/kg body wt/day demonstrated mostly non-specific toxic effects, such as reduced food consumption and reduced growth. Mild liver toxicity was observed in some studies, but there was no consistency to this effect. The dog was moderately sensitive to imidacloprid and poor appetite, tremors, vomiting and toxic effects in several organs were noted at doses of 23 mg/kg body wt/day and above. The lowest NOEL was 6 mg/kg body wt/day, observed in a 2-year feeding study in rats and based on mild age-related changes in the thyroid gland without any effects on thyroid function. These studies indicate that imidacloprid has a relatively low potential to cause adverse effects on human health following chronic exposures.

Imidacloprid did not have any significant toxic effects on reproduction or foetal development, did not have toxic effects on generic material (DNA), and did not increase the incidence of tumours in appropriate tests.

Potential for Chemical Residues in Food

Imidacloprid is applied to the foliage and acts as contact poison against sucking insects such as aphids and leaf-hoppers. Metabolism studies were done in tomatoes, potatoes, corn, wheat, rice and other crops. In tomatoes, extensive metabolism occurred when imidacloprid was injected into the plant stem, but not when applied to the fruit. There was no significant translocation into the fruit. Significant residues of unchanged imidacloprid were detectable in tomatoes 14 - 21 days after spraying onto the immature fruit. The extent of metabolism by other crop's ranged up to 90%, depending on the crop and the part of the crop sampled.

An analytical method suitable for determining unchanged imidacloprid with a limit of determination of 0.01 mg/kg was presented. Australian residue trial data on peaches, peacherines, cherries, potatoes, and the fruiting vegetables, tomatoes and capsicum were evaluated. In the absence of suitable data to evaluate the potential for residues to occur in livestock fed with treated produce, appropriate restraint statements have been recommended for inclusion on the labels.

Based on the evaluation of these trials, the following amendments to Table 1 of the MRL standard were recommended:

Table 1

Compound	Codex Code	Food	MRL mg/kg
Add: imidacloprid	VO 0050	Fruiting vegetables, other than curcubits	0.1
	VR 0589	Potato	*0.01
	FS 0012	Stone fruits	0.2

*at or abut the limit of determination

Withholding periods ranging from 3 - 21 days were recommended to accommodate these MRLs.

Public Health Standards

The Drugs & Poisons Schedule Standing Committee (DPSSC) of the National Health & Medical Research Council (NHMRC) considered the toxicology of the products and their active ingredient and assessed the necessary controls to be implemented under States' poisons regulations to prevent the occurrence of human poisoning.

The DPSSC recommended that imidacloprid be listed in Schedule 6 of the NHMRC Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP). The two products, CONFIDOR 200 SL and 350 SC, were considered to be sufficiently less hazardous to be listed in Schedule 5. There are provisions for appropriate warning statements, first aid and safety directions on the product labels.

OCCUPATIONAL HEALTH AND SAFETY

Before End-Use

Imidacloprid products will be formulated in Australia from imported imidacloprid. The physico-chemical and toxicological properties of imidacloprid indicate that it presents a low health and safety risk to workers when handled according to instructions on the label and in the MSDS. Imidacloprid has moderate oral, low dermal and low inhalational acute toxicity, and low chronic toxicity. Potential for exposure exists for workers engaged in formulation, packaging, transport, storage and retailing. It has low volatility, is not flammable and is stable at room temperature. Imidacloprid is a dangerous Good of class 6.1 (b) and packaging group 111.

CONFIDOR 200SL and CONFIDOR 350 SC do not pose a significant health and safety risk to transporters and other workers involved in handling, storage and retailing. They are not classified Dangerous Goods under the Australian Dangerous Goods Code.

End-Use

The products have low acute toxicity. CONFIDOR 200 SL also produces slight eye irritation. End-users will be potentially exposed when preparing and using the spray. However, as the spray has a low concentration of product (0.005%) active chemical in the spray for both the products, stone fruit and rose application), spray application would not pose a significant acute or chronic health risk. The products are also used for potatoes, capsicum, eggplant and tomatoes at rates ranging from 170 mL/ha (diluted to provide adequate crop coverage).

Imidacloprid has low chronic toxicity. Potential for chronic health effects in workers is low, as there would need to be repeated exposure and absorption of significant amounts of the products. Observation of safety directions and good personal hygiene should minimise the risk of exposure and absorption.

Recommendation to Control Worker Exposure

Imidacloprid, CONFIDOR 200 SL and CONFIDOR 350 SC are considered to be hazardous substances according to Worksafe Australia approved criteria for classifying hazardous substances based on acute oral toxicity.

Establishment by Worksafe Australia of an occupational exposure standard for the product is not considered necessary at this time.

Engineering controls and good work practices should minimise exposure to imidacloprid in the workplace. If a safe exposure level is not achieved by these measures, appropriate protective clothing and equipment should be worn.

The information on the label and the MSDS should be consulted prior to using the products. A copy of the MSDS should be easily accessible to all users/handlers of these products.

Labelling

The proposed labels for CONFIDOR 200 SL INSECTICIDE and CONFIDOR 350 SC INSECTICIDE are at appendix 1.

SUGGESTED FURTHER READING

Interim Requirements for Clearance of Agricultural and Veterinary Chemical Products (available from the NRA)

Code of Practice for Labelling Agricultural Chemical Products (available from the NRA)

MRL Standard - Maximum residue limits in food and animal feedstuffs (NHMRC)

Confidor 200 SL

WARNING

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING

Confidor® 200 SL Insecticide

Active constituent: 200 g/L IMIDACLOPRID

For the control of green peach aphid on stone fruit, potatoes, capsicum,
eggplant and tomatoes and rose aphid on roses.

1 LITRE

5 LITRES

20 LITRES

Confidor 200 SL

Directions for use

Crop	Pest	State	Rate	WHP	Critical Comments
Stone fruit	Green peach aphid	ALL STATES	25 mL/100 L	3 weeks	Apply at first sign of aphid infestation. Apply as a full cover spray, ensuring thorough coverage. For low volume equipment see General Instructions. Do not use more than one spray per season.
Potatoes Capsicum Eggplant			300 mL/ha	7 days	Apply at first sign of aphid infestation. Repeat if necessary.
Tomatoes				3 days	
Roses	Rose aphid		25 mL/100 L	-	Apply at first sign of aphid infestation. Repeat if necessary but only as part of a strategic program including other aphicides.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY M.AJ\TNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

WITHHOLDING PERIODS:

TOMATOES: DO NOT APPLY LATER THAN 3 DAYS BEFORE HARVEST

CAPSICUM, EGG PLANT, POTATOES: DO NOT APPLY LATER THAN 7 DAYS BEFORE HARVEST

STONE FRUIT: DO NOT APPLY LATER THAN 3 WEEKS BEFORE HARVEST

DO NOT GRAZE ANY TREATED AREA, OR CUT FOR STOCK FOOD

DO NOT FEED PRODUCE HARVESTED FROM TREATED AREA TO ANIMALS, INCLUDING POULTRY

General Instructions - Confidor 200 SL

Mixing

Add the required quantity of Confidor 200 SL to water in the spray vat while stirring or with agitators in motion.

Low volume equipment: Where low volume equipment is used, increase the rate of Confidor per 100 L in proportion to the reduction in spray volume applied per hectare. Eg, if it requires 2000 L/ha to spray to runoff and the equipment applies 1000 L/ha, use twice the rate of Confidor/100 L. If it requires 4000 L/ha and the equipment applies 1000 L/ha, use four times the rate of Confidor/100 L. Do not use Confidor in equipment requiring rates greater than 125 mL/100 L (5X).

Resistance note: The effectiveness of this product may be reduced or nullified as a result of pests developing a tolerance or resistance to the product. If unacceptable control occurs immediately contact your Bayer representative. This product should not be used where the user suspects that a tolerant or resistant strain is present.

Note on ornamentals: Confidor 200 SL Insecticide has been used on a wide range of ornamental plant species without damage. However, some species and varieties are particularly sensitive to chemical sprays and as this is often related to local conditions it is advisable to treat only a small number of plants first, in order to ascertain their reaction before treating the whole crop.

Compatibility

Confidor 200 SL is compatible with Antracol®, Helothion®, Nitofol®. The compatibilities given are based on worldwide experience and are considered correct. However, as changes in climatic conditions can alter the sensitivity of plants to mixture of sprays, we accept no responsibility for the behaviour of such mixtures.

Protection of Livestock

Dangerous to bees. Do NOT spray any plants in flower while bees are foraging.

Protection of Wildlife, Fish, Crustacea and Environment

Do NOT contaminate ponds, waterways and drains with this product or used container.

Storage and Disposal

Store in the tightly closed, original container in a well ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. Triple rinse empty containers, adding rinsings to the spray tank, or dispose of with empty container. Puncture top, bottom and sides of empty container, then crush and bury in an approved landfill, or bury under at least 500 mm of soil in a non-crop, non-pasture area away from water courses or homes. Do not burn empty container or product.

Confidor 200 SL

Safety Directions

Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. When using the product wear face shield. Wash hands after use. After each day's use, wash face shield.

Confidor 200 SL

First Aid

If poisoning occurs contact a doctor or Poisons Information Centre. If skin contact occurs, remove contaminated clothing and wash skin thoroughly.

Limitation of Liability

This product is designed only for the purposes indicated on this label. Failure to use this product strictly as directed may be illegal ; prove dangerous ; render the product ineffective and avoid any Warranty or Liability of Bayer Australia Limited.

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<p>IN A TRANSPORT EMERGENCY DIAL 000 POLICE OR FIRE BRIGADE</p>
<p>Bayer Australia Limited emergency contact 008 03 3111 Australia wide, 24 hours</p>
<p>Bayer Australia Limited 875 Pacific Highway Pymble NSW 2073 Telephone (02) 391 6000</p>

For further information refer to the Material Safety Data Sheet for the product.

Confidor 350 SC

WARNING

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING

Confidor® 350 SC Insecticide

Active constituent: 350 g/L IMIDACLOPRID

For the control of green peach aphid on stone fruit, potatoes, capsicum,
eggplant and tomatoes and rose aphid on roses.

1 LITRE

5 LITRES

20 LITRES

Confidor 350 SC

Directions for use

Crop	Pest	State	Rate	WHP	Critical Comments
Stone fruit	Green peach aphid	ALL STATES	15 mL/100 L	3 weeks	Apply at first sign of aphid infestation. Apply as a full cover spray, ensuring thorough coverage. For low volume equipment see General Instructions. Do not use more than one spray per season.
Potatoes Capsicum Eggplant			170 mL/ha	7 days	Apply at first sign of aphid infestation. Repeat if necessary.
Tomatoes				3 days	
Roses	Rose aphid		15 mL/100 L	-	Apply at first sign of aphid infestation. Repeat if necessary but only as part of a strategic program including other aphicides.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

WITHHOLDING PERIODS:

TOMATOES: DO NOT APPLY LATER THAN 3 DAYS BEFORE HARVEST

CAPSICUM, EGG PLANT, POTATOES: DO NOT APPLY LATER THAN 7 DAYS BEFORE HARVEST

STONE FRUIT: DO NOT APPLY LATER THAN 3 WEEKS BEFORE HARVEST

DO NOT GRAZE ANY TREATED AREA, OR CUT FOR STOCK FOOD

DO NOT FEED PRODUCE HARVESTED FROM TREATED AREA TO ANIMALS, INCLUDING POULTRY

General Instructions - Confidor 350 SC

Mixing

Prior to pouring, shake container vigorously, then add the required quantity of Confidor 350 SC to water in the spray vat while stirring or with agitators in motion.

Low volume equipment: Where low volume equipment is used, increase the rate of Confidor per 100 L in proportion to the reduction in spray volume applied per hectare. Eg, if it requires 2000 L/ha to spray to runoff and the equipment applies 1000 L/ha, use twice the rate of Confidor/100 L. If it requires 4000 L/ha and the equipment applies 1000 L/ha, use four times the rate of Confidor/100 L. Do not use Confidor in equipment requiring rates greater than 75mL/100L (5X).

Resistance note: The effectiveness of this product may be reduced or nullified as a result of pests developing a tolerance or resistance to the product. If unacceptable control occurs immediately contact your Bayer representative. This product should not be used where the user suspects that a tolerant or resistant strain is present. .

Note on ornamentals: Confidor 350 SC Insecticide has been used on a wide range of ornamental plant species without damage. However, some species and varieties are particularly sensitive to chemical sprays and as this is often related to local conditions it is advisable to treat only a small number of plants first, in order to ascertain their reaction before treating the whole crop.

Compatibility

Confidor 350 SC is compatible with Antracol®, Helothion®, Nitofol®.

The compatibilities given are based on worldwide experience and are considered correct. However, as changes in climatic conditions can alter the sensitivity of plants to mixture of sprays, we accept no responsibility for the behaviour of such mixtures.

Protection of Livestock

Dangerous to bees. Do NOT spray any plants in flower while bees are foraging.

Protection of Wildlife, Fish, Crustacea and Environment

Do NOT contaminate ponds, waterways and drains with this product or used container.

Storage and Disposal

Store in the tightly closed, original container in a well ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. Triple rinse empty containers, adding rinsings to the spray tank, or dispose of with empty container. Puncture top, bottom and sides of empty container, then crush and bury in an approved landfill, or bury under at least 500 mm of soil in a non-crop, non-pasture area away from water courses or homes. Do not burn empty container or product.

Confidor 350 SC

Safety Directions

Harmful if swallowed. Wash hands after use.

First Aid

If poisoning occurs contact a doctor or Poisons Information Centre.

Limitation of Liability

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